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Service Manual

ORDER NO.
RRV2645

DVD PLAYER

DV-350-K
DV-350-S

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Regional restriction codes (Region No.)	Remarks
DV-350-K	WYXK	AC220-240V	2	
DV-350-K	WYXK/FRGR	AC220-240V	2	
DV-350-K	WVXK	AC220-240V	2	
DV-350-S	WYXK	AC220-240V	2	
DV-350-S	WYXK/FRGR	AC220-240V	2	
DV-350-S	WVXK	AC220-240V	2	

● **This service manual should be used together with the following manual(s):**

Model No.	Order No.	Remarks
DV-454-K/WYXU	RRV2610	

Confirm it

Serial No.

○○**XK**: □□**UK**＃＃＃＃＃＃△△

PIONEER CORPORATION 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
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CONTRAST OF MISCELLANEOUS PARTS

NOTES :
- *Parts marked by " NSP " are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Reference Nos. indicate the pages and Nos. in the service manual for the base model.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560 Ω → 56 × 10[1] → 561 ..... RD1/4PU 5 6 1 J
47k Ω → 47 × 10[3] → 473 ..... RD1/4PU 4 7 3 J
0.5 Ω → R50 ..... RN2H R 5 0 K
1 Ω → 1R0 ..... RS1P 1 R 0 K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562 × 10[1] → 5621 ..... RN1/4PC 5 6 2 1 F

■ CONTRAST TABLE for DV-350-K

DV-350-K/WYXK, WYXK/FR/GR, WVXK and DV-454-K/WYXU are constructed the same except for the following:

Ref. No.	Mark	Symbol and Description	Part No.				Remarks
			DV-454-K	DV-350-K			
			WYXU	WYXK	WYXK/FRGR	WVXK	
		PCB ASSEMBLIES					
P11 - 1	NSP	LOAB ASSY	VWG2279	VWG2398	VWG2398	VWG2398	
P9 - 3		FJMB ASSY	VWS1518	VWS1517	VWS1517	VWS1517	
		PACKING					
P7 - 1	⚠	Power Cable	ADG1154	ADG1154	ADG1154	ADG1156	
P7 - 3	NSP	AA/6P Dry Cell Battery	VEM1030	VEM1017	VEM1017	VEM1017	
P7 - 5		Operating Instructions (English, Italian)	VRD1151	VRD1151	Not used	Not used	
P7 - 6		Operating Instructions (French, German)	VRD1152	VRD1152	VRD1152	Not used	
P7 - 7		Remote Control	VXX2800	VXX2801	VXX2801	VXX2801	
P7 - 9		Pad L	VHA1297	VHA1305	VHA1305	VHA1305	
P7 -10		Pad R	VHA1298	VHA1306	VHA1306	VHA1306	
P7 -11		Paper Board	VHC1089	VHC1094	VHC1094	Not used	
P7 -12		Packing Case	VHG2185	VHG2211	VHG2210	VHG2212	
P7 -14		Battery Cover	VNK4997	VNK4998	VNK4998	VNK4998	
P7 -15		Operating Instructions (Spanish, Dutch)	VRD1153	VRD1153	Not used	Not used	
P7 -16		Operating Instructions (English)	Not used	Not used	Not used	VRB1286	
P7 -17		Accessory Box	Not used	Not used	Not used	VHC1095	
	NSP	Catalog	VRY1128	Not used	Not used	Not used	
		EXTERIOR SECTION					
P9 - 8	NSP	Loading Mechanism Assy	VWT1197	VWT1198	VWT1198	VWT1198	
P9 -12	NSP	Base Chassis	VNA2410	VNA2501	VNA2501	VNA2501	
P9 -13		Rear Panel	VNA2441	VXA2542	VXA2542	VXA2542	
P9 -14		PCB Base	VNE2278	VNE2277	VNE2277	VNE2277	
P9 -15		DVD V Plate	VAM1120	VAM1121	VAM1121	VAM1121	
P9 -18		Tray Panel Assy	VXA2514	Not used	Not used	Not used	
P9 -18		Tray Panel	Not used	VNK4962	VNK4962	VNK4962	
P9 -19		Front Panel Assy	VXA2497	VXA2537	VXA2537	VXA2537	
P9 -28		Flexible Cable (20P)	VDA1892	VDA1893	VDA1893	VDA1893	
P9 -29		Ring	VNK4982	Not used	Not used	Not used	
P9 -30		Tray Panel	VNK4976	Not used	Not used	Not used	
P9 -31		Sub Panel	VNK5043	Not used	Not used	Not used	
		LOADING MECHANISM ASSY					
P11 - 6		Flexible Cable (26P)	VDA1865	VDA1864	VDA1864	VDA1864	

• For PCB assembly, Refer to "CONTRAST OF PCB ASSEMBLIES".

■ CONTRAST TABLE for DV-350-S

DV-350-S/WYXK, WYXK/FR/GR, WVXK and DV-454-S/WYXU are constructed the same except for the following:

Ref. No.	Mark	Symbol and Description	Part No.				Remarks
			DV-454-S	DV-350-S			
			WYXU	WYXK	WYXK/FRGR	WVXK	
		PCB ASSEMBLIES					
P11 - 1	NSP	LOAB ASSY	VWG2279	VWG2398	VWG2398	VWG2398	
P9 - 3		FJMB ASSY	VWS1518	VWS1517	VWS1517	VWS1517	
		PACKING					
P7 - 1	⚠	Power Cable	ADG1154	ADG1154	ADG1154	ADG1156	
P7 - 3	NSP	AA/6P Dry Cell Battery	VEM1030	VEM1017	VEM1017	VEM1017	
P7 - 5		Operating Instructions (English, Italian)	VRD1151	VRD1151	Not used	Not used	
P7 - 6		Operating Instructions (French, German)	VRD1152	VRD1152	VRD1152	Not used	
P7 - 7		Remote Control	VXX2800	VXX2801	VXX2801	VXX2801	
P7 - 9		Pad L	VHA1297	VHA1305	VHA1305	VHA1305	
P7 -10		Pad R	VHA1298	VHA1306	VHA1306	VHA1306	
P7 -11		Paper Board	VHC1089	VHC1094	VHC1094	Not used	
P7 -12		Packing Case	VHG2182	VHG2213	VHG2214	VHG2215	
P7 -14		Battery Cover	VNK4997	VNK4998	VNK4998	VNK4998	
P7 -15		Operating Instructions (Spanish, Dutch)	VRD1153	VRD1153	Not used	Not used	
P7 -16		Operating Instructions (English)	Not used	Not used	Not used	VRB1286	
P7 -17		Accessory Box	Not used	Not used	Not used	VHC1095	
	NSP	Catalog	VRY1128	Not used	Not used	Not used	
		EXTERIOR SECTION					
P9 - 8	NSP	Loading Mechanism Assy	VWT1197	VWT1198	VWT1198	VWT1198	
P9 -12	NSP	Base Chassis	VNA2410	VNA2501	VNA2501	VNA2501	
P9 -13		Rear Panel	VNA2439	VXA2543	VXA2543	VXA2543	
P9 -14		PCB Base	VNE2278	VNE2277	VNE2277	VNE2277	
P9 -15		DVD V Plate	VAM1120	VAM1121	VAM1121	VAM1121	
P9 -18		Tray Panel Assy	VXA2506	Not used	Not used	Not used	
P9 -18		Tray Panel	Not used	VNK4965	VNK4965	VNK4965	
P9 -19		Front Panel Assy	VXA2498	VXA2538	VXA2538	VXA2538	
P9 -28		Flexible Cable (20P)	VDA1892	VDA1893	VDA1893	VDA1893	
P9 -29		Ring	VNK4982	Not used	Not used	Not used	
P9 -30		Tray Panel	VNK4979	Not used	Not used	Not used	
P9 -31		Sub Panel	VNK5043	Not used	Not used	Not used	
		LOADING MECHANISM ASSY					
P11 - 6		Flexible Cable (26P)	VDA1865	VDA1864	VDA1864	VDA1864	

• For PCB assembly, Refer to “CONTRAST OF PCB ASSEMBLIES”.

■ CONTRAST OF PCB ASSEMBLIES

A LOAB ASSY

VWG2279 and VWG2398 are constructed the same except for the following:

Mark	Symbol and Description	Part No.		Remarks
		VWG2279	VWG2398	
	PRINTED CIRCUIT BOARD	VNP1837	VNP1883	

B FJMB ASSY

VWS1517 and VWS1518 are constructed the same except for the following:

Mark	Symbol and Description	Part No.		Remarks
		VWS1518	VWS1517	
	C952	CKSRYF104Z25	Not used	
	JA950 OPT. LINK OUT 8MB/S	JFJ1001	Not used	
	FL HOLDER	VNK4980	VNK4954	

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Service Manual

DV-454-K

ORDER NO.
RRV2610

DVD PLAYER

DV-454-K
DV-454-S

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Regional restriction codes (Region No.)	Remarks
DV-454-K	WYXU	AC220-240V	2	
DV-454-K	WYXU/FRGR	AC220-240V	2	
DV-454-K	WVXU	AC220-240V	2	
DV-454-S	WYXU	AC220-240V	2	
DV-454-S	WYXU/FRGR	AC220-240V	2	
DV-454-S	WVXU	AC220-240V	2	

Confirm it

Serial No.

○○**XU**: □□**PG**＃＃＃＃＃＃△△

For details, refer to "Important symbols for good services".

PIONEER CORPORATION 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
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SAFETY INFORMATION

This service manual is intended for qualified service technicians ; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trainedto properly and safely repair complex products such as those covered by this manual.Improperly performed repairs can adversely affect the safety and reliability of the product and mayvoid the warranty. If you are not qualified to perform the repair of this product properly and safely, youshould not risk trying to do so and refer the repair to a qualified service technician.

WARNING !

THE AEL (ACCESSIBLE EMISSION LEVEL) OF THE LASER POWER OUTPUT IS LESS THAN CLASS 1 BUT THE LASER COMPONENT IS CAPABLE OF EMITTING RADIATION EXCEEDING THE LIMIT FOR CLASS 1.
A SPECIALLY INSTRUCTED PERSON SHOULD DO SERVICING OPERATION OF THE APPARATUS.

LASER DIODE CHARACTERISTICS

FOR DVD : MAXIMUM OUTPUT POWER : 5 mW
WAVELENGTH : 650 nm
FOR CD : MAXIMUM OUTPUT POWER : 5 mW
WAVELENGTH : 780 nm

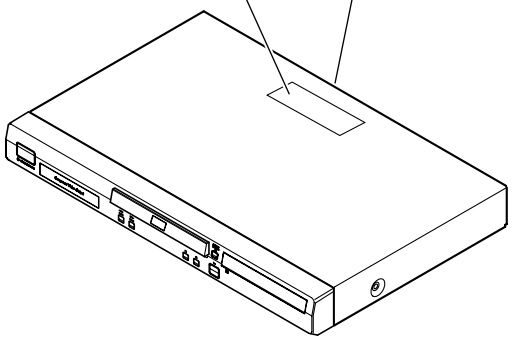
LABEL CHECK

CAUTION	: VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
VORSICHT	: SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG, WENNABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETZEN!
ADVARSEL	: SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARNING	: SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD BETRAKTA EJ STRÅLEN.
VARO!	: AVATTAESSA ALTISTUT NÄKYVÄ JA NÄKYMÄTTÖMÄLLE LASERSATEIL YLLE. ÄLÄ KATSO SÄTEESEN.
CUIDADO	: RADIACIÓN LÁSER VISIBLE E INVISIBLE AL ESTAR ABIERTO. EVITAR EXPOSICIÓN AL RAYO.

VRW1872

CLASS 1
LASER PRODUCT

(Printed on the Rear Panel)



Additional Laser Caution

1. Laser Interlock Mechanism
   • Loading switch (S101 on the LOAB Assy) is used for interlock mechanism of the laser.
   When this switch turned ON in SW2 (XCLOSE) side (OPEN signal is 0V and XCLOSE signal is 3.5V), a laser becomes the status which can completely oscillation.
   Furthermore, the laser completely oscillates in the disc judgment and disc playback.
   When player is power ON state and laser diode is not completely oscillating, 780nm laser diode is always oscillating by half power.
   • Laser diode is driving with Q101 (650nm LD) and Q102 (780nm LD) on the FJMB Assy.
   Therefore, when short-circuit between the emitter and collector of these transistors or the base voltage is supplied for transistors turn on, the laser oscillates. (failure mode)
   • In the test mode ∗ , there is the mode that the laser oscillates except for the disc judgment and playback. LD ON mode in the test mode oscillates with the laser forcibly.
   The interlock mechanism mentioned above becomes invalid in this mode.

2. When the cover is open, close viewing through the objective lens with the naked eye will cause exposure to the laser beam.

∗ : See page 53.

[Important symbols for good services]
In this manual, the symbols shown-below indicate that adjustments, settings or cleaning should be made securely.
When you find the procedures bearing any of the symbols, be sure to fulfill them:

1. Product safety

You should conform to the regulations governing the product (safety, radio and noise, and other regulations), and should keep the safety during servicing by following the safety instructions described in this manual.

2. Adjustments

To keep the original performances of the product, optimum adjustments or specification confirmation is indispensable. In accordance with the procedures or instructions described in this manual, adjustments should be performed.

3. Cleaning

For optical pickups, tape-deck heads, lenses and mirrors used in projection monitors, and other parts requiring cleaning, proper cleaning should be performed to restore their performances.

4. Shipping mode and shipping screws

To protect the product from damages or failures that may be caused during transit, the shipping mode should be set or the shipping screws should be installed before shipping out in accordance with this manual, if necessary.

5. Lubricants, glues, and replacement parts

Appropriately applying grease or glue can maintain the product performances. But improper lubrication or applying glue may lead to failures or troubles in the product. By following the instructions in this manual, be sure to apply the prescribed grease or glue to proper portions by the appropriate amount.For replacement parts or tools, the prescribed ones should be used.

Discs compatible with this player

Any disc that displays one of the following logos should play in this player. Other formats, including DVD-Audio, DVD-RAM, DVD-ROM, CD-ROM (except those that contain MP3 files), SACD and Photo CD will not play.

DVD-Video

Audio-CD Video-CD CD-R CD-RW

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1. SPECIFICATIONS

General

System ..... DVD-Video, Video CD
CD and MP3 files
Power requirements .... AC 220–240V, 50/60 Hz
Power consumption.....14 W
Power consumption (standby)..... 0.3 W
Weight ..... 2.5 kg
Dimensions
DV-454 .....420 (W) x 55 (H) x 278 (D) mm

Operating temperature.....+5°C to +35°C
Operating humidity .....5% to 85%
(no condensation)

S-Video output

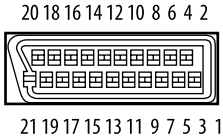
Y (luminance) - Output level.....1 Vp-p (75Ω)
C (color) - Output level..... 286 mVp-p (75Ω)
Jack ..... S-Video jack

Video output

Output level .....1 Vp-p (75Ω)
Jack .....RCA jack

AV connector output

AV Connectors (21-pin connector assignment)
AV connector input/output .....21-pin connector
This connector provides the video and audio signals for connection to a compatible colour TV or monitor.



PIN no.
1 ..... Audio 2/R out
3 ..... Audio 1/L out
4 .....GND
7 .....B out
8 ..... Status
11 .....G out
15 .....R or C out
17 .....GND
19 ..... Video out or Y out
21 .....GND

Audio output (1 stereo pair)

Output level .....During audio output
200 mVrms (1 kHz, –20 dB)
Number of channels 2
Jacks .....RCA jack

Digital audio characteristics

Frequency response..... 4 Hz to 44 kHz
(DVD fs: 96 kHz)
S/N ratio .....118 dB
Dynamic range .....101 dB
Total harmonic distortion 0.0016%
Wow and flutter.....Limit of measurement
(0.001%W. PEAK) or lower

Digital output

Optical digital output .....Optical digital jack
Coaxial digital output ..... RCA jack

Accessories

Audio/video cable 1
Power cable 1
Remote control.....1
AA/R6P dry cell batteries 2
Operating Instructions 1
Warranty card 1

Note

- The specifications and design of this product are subject to change without notice, due to improvement.

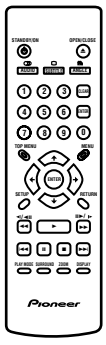
• Manufactured under license from Dolby Laboratories. “Dolby” and the double-D symbol are trademarks of Dolby Laboratories.

• “DTS” is a registered trademark of Digital Theater Systems, Inc.

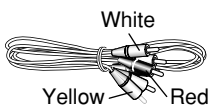
• TruSurround and the (●) ® symbol are trademarks of SRS Labs, Inc. TruSurround technology is incorporated under license from SRS Labs, Inc.

■ Accessories

Remote Control : VXX2800

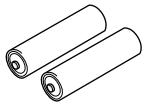


Audio/Video Cable (L=1.5m): XDE3049

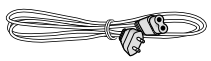


Power Cable [WVXU Type]
: ADG1156

AA/R6P Dry Cell Batteries



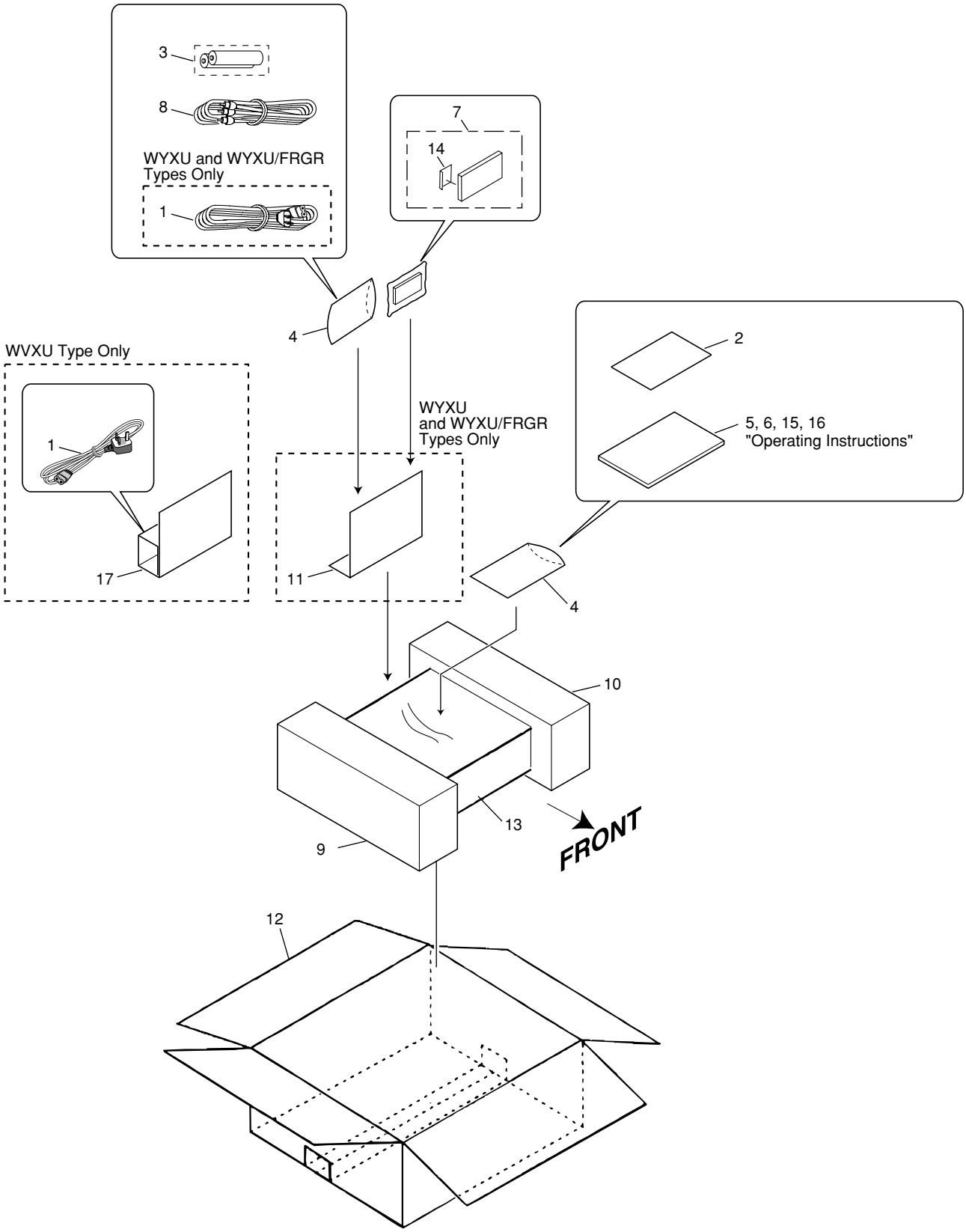
Power Cable [Other Types]
: ADG1154



2. EXPLODED VIEWS AND PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*

2.1 PACKING



(1) PACKING PARTS LIST

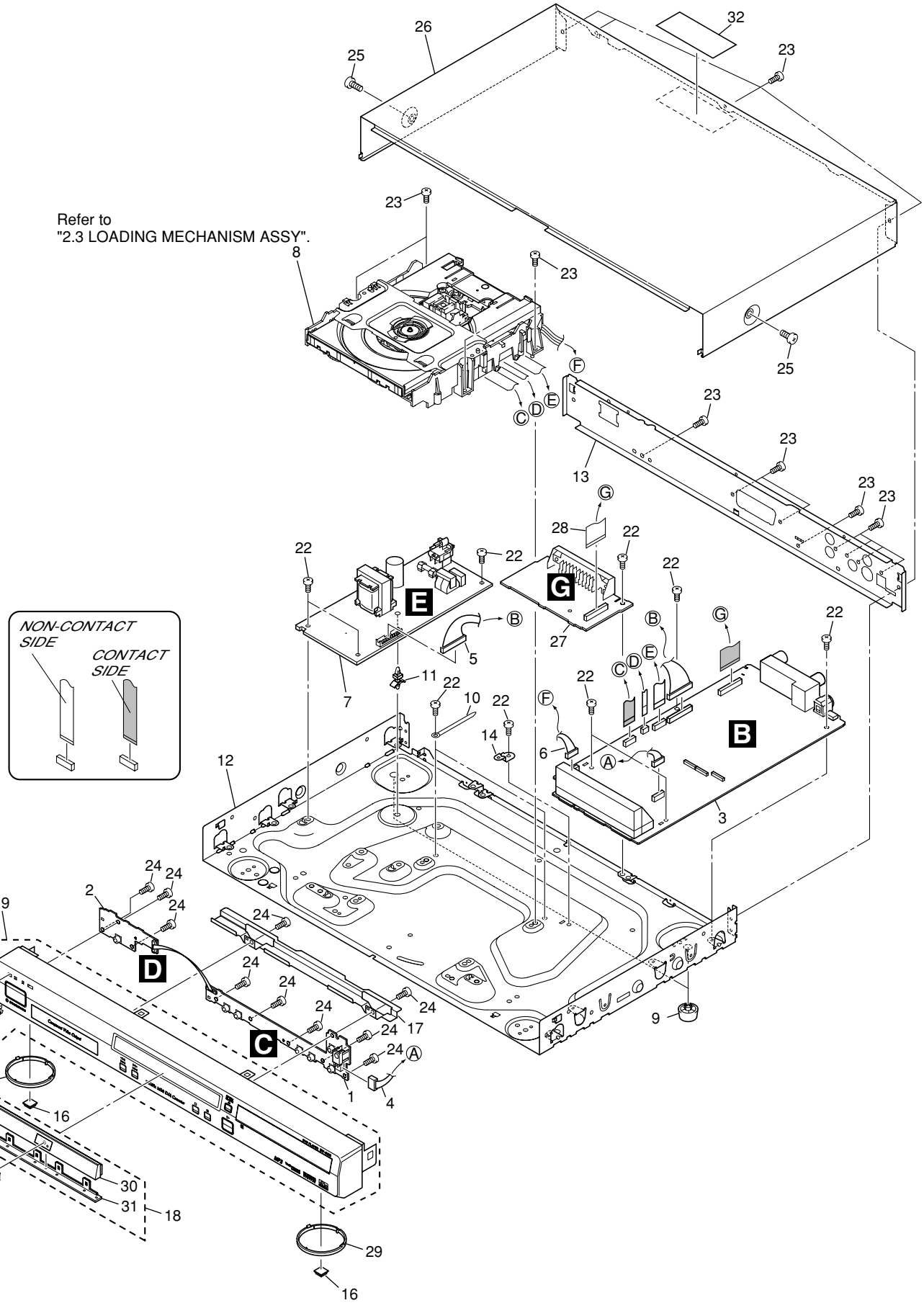
Mark	No.	Description	Part No.
⚠	1	Power Cable	See Contrast table (2)
NSP	2	Warranty Card	ARY7022
NSP	3	AA/R6P Dry Cell Battery	VEM1030
	4	Polyethylene Bag	VHL1051
	5	Operating Instructions (English / Italian)	See Contrast table (2)
	6	Operating Instructions (French / German)	See Contrast table (2)
	7	Remote Control	VXX2800
	8	Audio/Video Cable (L=1.5m)	XDE3049
	9	Pad L	VHA1297
	10	Pad R	VHA1298
	11	Paper Board	See Contrast table (2)
	12	Packing Case	See Contrast table (2)
	13	Seat	Z23-007
	14	Battery Cover	VNK4997
	15	Operating Instructions (Spanish / Dutch)	See Contrast table (2)
	16	Operating Instructions (English)	See Contrast table (2)
	17	Accessory Box	See Contrast table (2)

(2) CONTRAST TABLE

DV-454-K/WYXU, WYXU/FRGR, WVXU, DV-454-S/WYXU, WYXU/FRGR and WVXU are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.						Remarks
			DV-454-K			DV-454-S			
			WYXU	WYXU/FRGR	WVXU	WYXU	WYXU/FRGR	WVXU	
⚠	1	Power Cable	ADG1154	ADG1154	ADG1156	ADG1154	ADG1154	ADG1156	
	5	Operating Instructions (English / Italian)	VRD1151	Not used	Not used	VRD1151	Not used	Not used	
	6	Operating Instructions (French / German)	VRD1152	VRD1152	Not used	VRD1152	VRD1152	Not used	
	11	Paper Board	VHC1089	VHC1089	Not used	VHC1089	VHC1089	Not used	
	12	Packing Case	VHG2185	VHG2201	VHG2181	VHG2182	VHG2203	VHG2202	
	15	Operating Instructions (Spanish / Dutch)	VRD1153	Not used	Not used	VRD1153	Not used	Not used	
	16	Operating Instructions (English)	Not used	Not used	VRB1286	Not used	Not used	VRB1286	
	17	Accessory Box	Not used	Not used	VHC1092	Not used	Not used	VHC1092	

2.2 EXTERIOR SECTION



(1) EXTERIOR PARTS LIST

Mark	No.	Description	Part No.
NSP	1	IRKY Assy	VWG2344
NSP	2	PWSB Assy	VWG2345
	3	FJMB Assy	VWS1518
	4	Connector Assy	PF05PP-Q12
	5	Connector Assy	PF13PP-D25
	6	Connector Assy	PG05KK-E37
⚠	7	POWER SUPPLY Unit	VWR1354 (or VWR1352)
NSP	8	Loading Mechanism Assy	VWT1197
	9	Leg Assy SX	AEC7113
	10	Cord Clamper	RNH-184
	11	Pcb Support	VEC2184
NSP	12	Base Chassis	VNA2410
	13	Rear Panel	See Contrast table (2)
	14	PCB Base	VNE2278
	15	DVD V Plate	VAM1120
	16	Rubber Foot	VEB1325
	17	FP Angle	VNE2270
	18	Tray Panel Assy	See Contrast table (2)
	19	Front Panel Assy	See Contrast table (2)
	20	Pioneer Badge	See Contrast table (2)
	21	••••••	
	22	Screw	BBZ30P060FMC
	23	Screw	BBZ30P080FZK
	24	Screw	BBZ30P100FZK
	25	Screw	See Contrast table (2)
	26	Bonnet Case S	See Contrast table (2)
	27	SCRB Assy	VWV1903
	28	Flexible Cable (20P)	VDA1892
	29	Ring	VNK4982
	30	Tray Panel	See Contrast table (2)
	31	Sub Panel	See Contrast table (2)
	32	Label	VRW1872

(2) CONTRAST TABLE

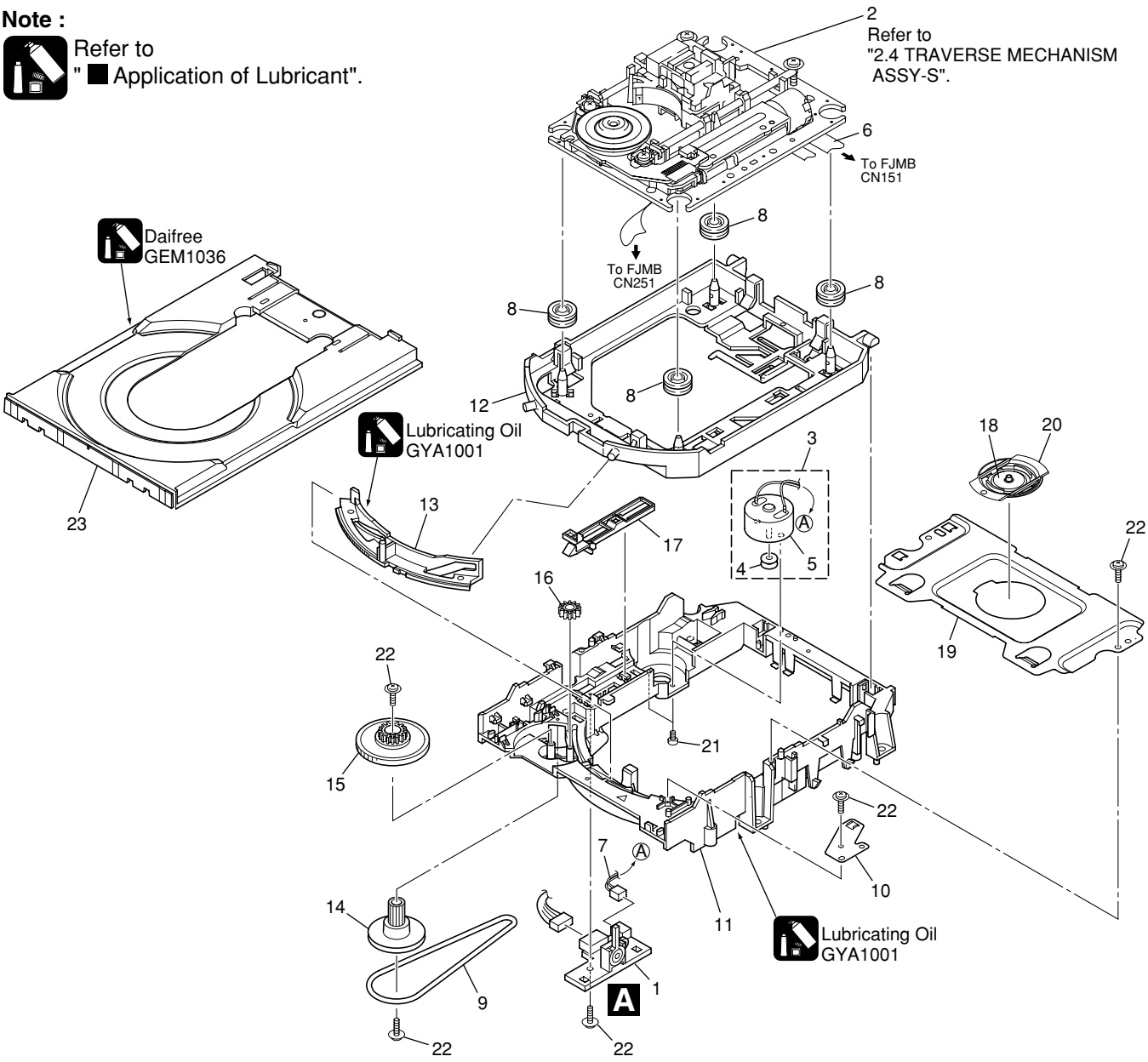
DV-454-K/WYXU, WYXU/FRGR, WVXU, DV-454-S/WYXU, WYXU/FRGR and WVXU are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.						Remarks
			DV-454-K			DV-454-S			
			WYXU	WYXU/FRGR	WVXU	WYXU	WYXU/FRGR	WVXU	
	13	Rear Panel	VNA2441			VNA2439			
	18	Tray Panel Assy	VXA2514			VXA2506			
	19	Front Panel Assy	VXA2497			VXA2498			
	20	Pioneer Badge	VAM1130			VAM1129			
	25	Screw	BCZ40P060FZK			BCZ40P060FNI			
	26	Bonnet Case S	VXX2831			VXX2823			
	30	Tray Panel	VNK4976			VNK4979			
	31	Sub Panel	VNK5043			VNK4977			

2.3 LOADING MECHANISM ASSY

Note :

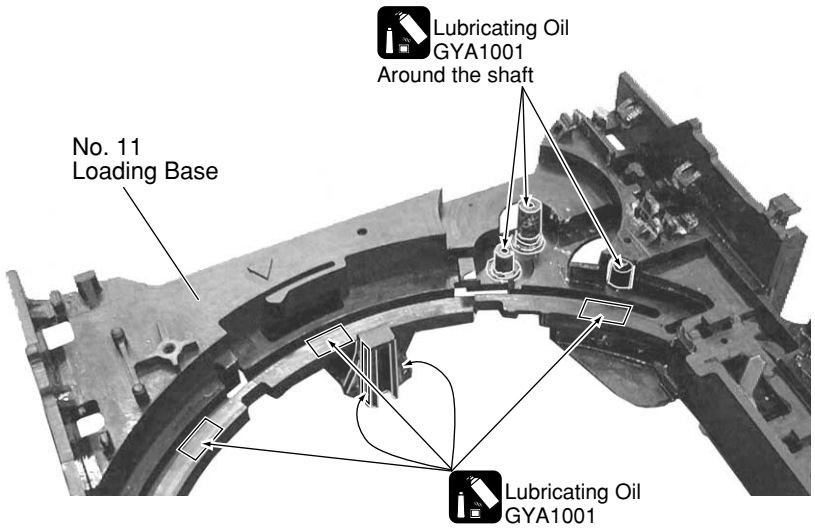
Refer to
" ■ Application of Lubricant".

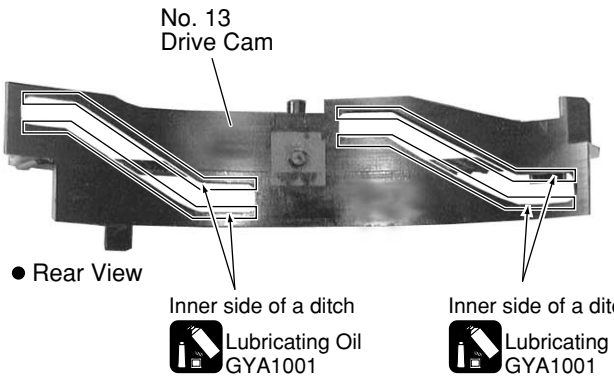


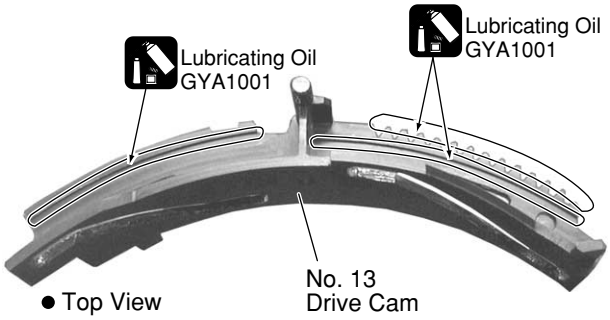
● LOADING MECHANISM ASSY PARTS LIST

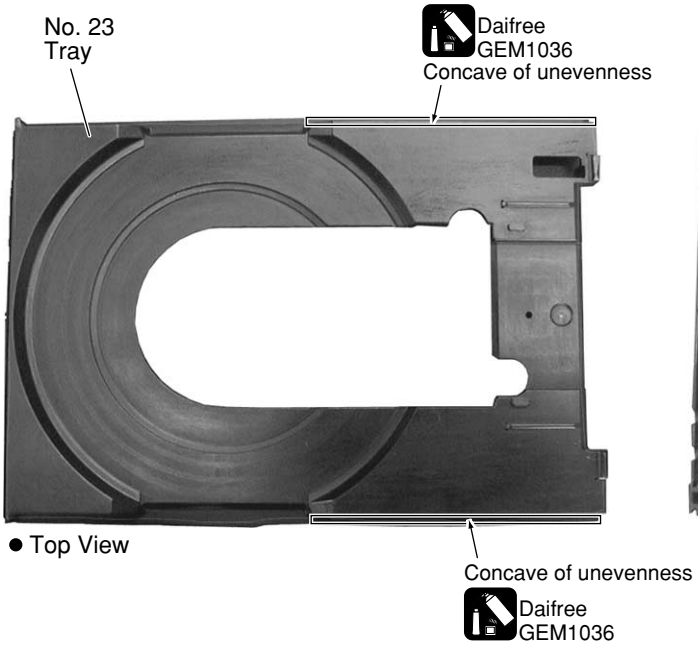
Mark	No.	Description	Part No.
NSP	1	LOAB Assy	VWG2279
	2	Traverse Mechanism Assy-S	VXX2782
	3	Loading Motor Assy	VXX2505
	4	Motor Pulley	PNW1634
	5	Carriage DC Motor / 0.3W	PXM1027
	6	Flexible Cable (26P)	VDA1865
	7	Connector Assy 2P	VKP2253
	8	Float Rubber	VEB1327
	9	Belt	VEB1330
	10	Stabilizer	VNE2253
	11	Loading Base	VNL1917
	12	Float Base DVD	VNL1918
	13	Drive Cam	VNL1919
	14	Gear Pulley	VNL1921
	15	Loading Gear	VNL1922
	16	Drive Gear	VNL1923
	17	SW Lever	VNL1925
	18	Clamper Plate	VNE2251
	19	Bridge	VNE2252
	20	Clamper	VNL1924
	21	Screw	JGZ17P028FMC
	22	Screw	Z39-019
	23	Tray	VNL1920

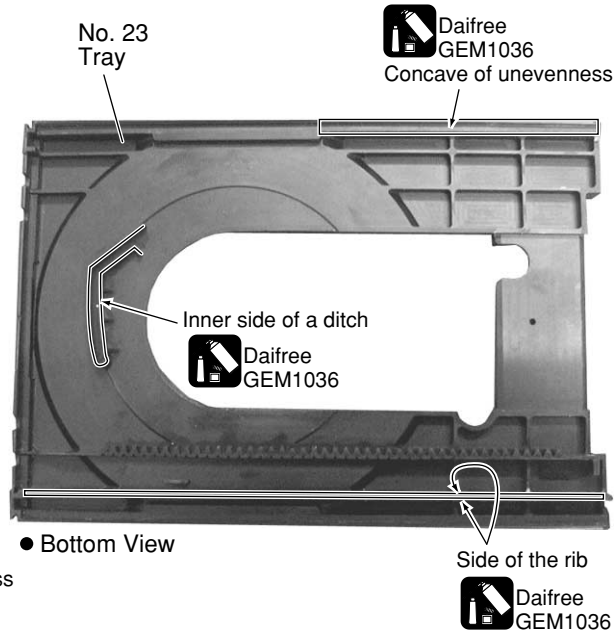
Application of Lubricant











A

B

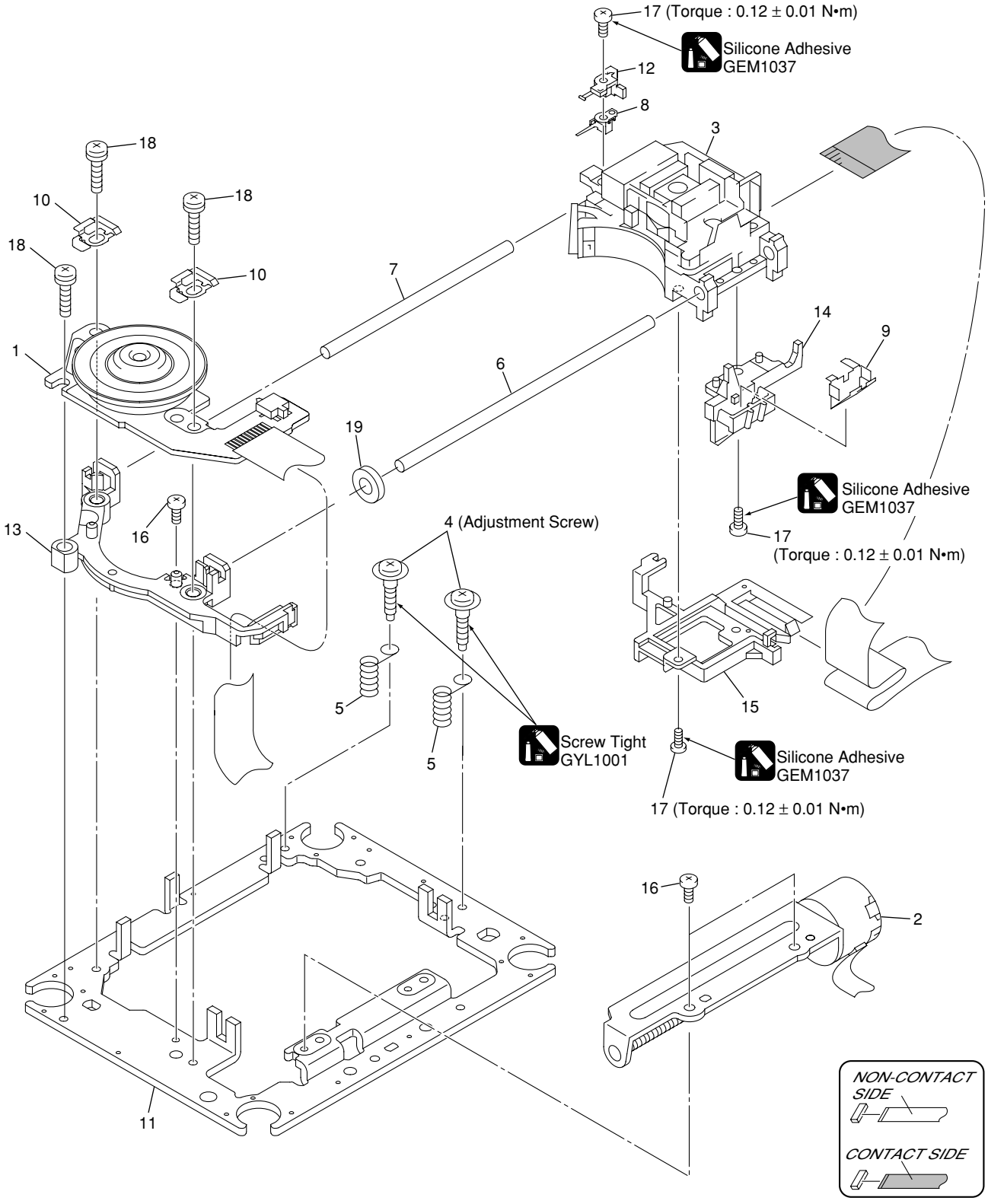
C

D

E

F

2.4 TRAVERSE MECHANISM ASSY-S



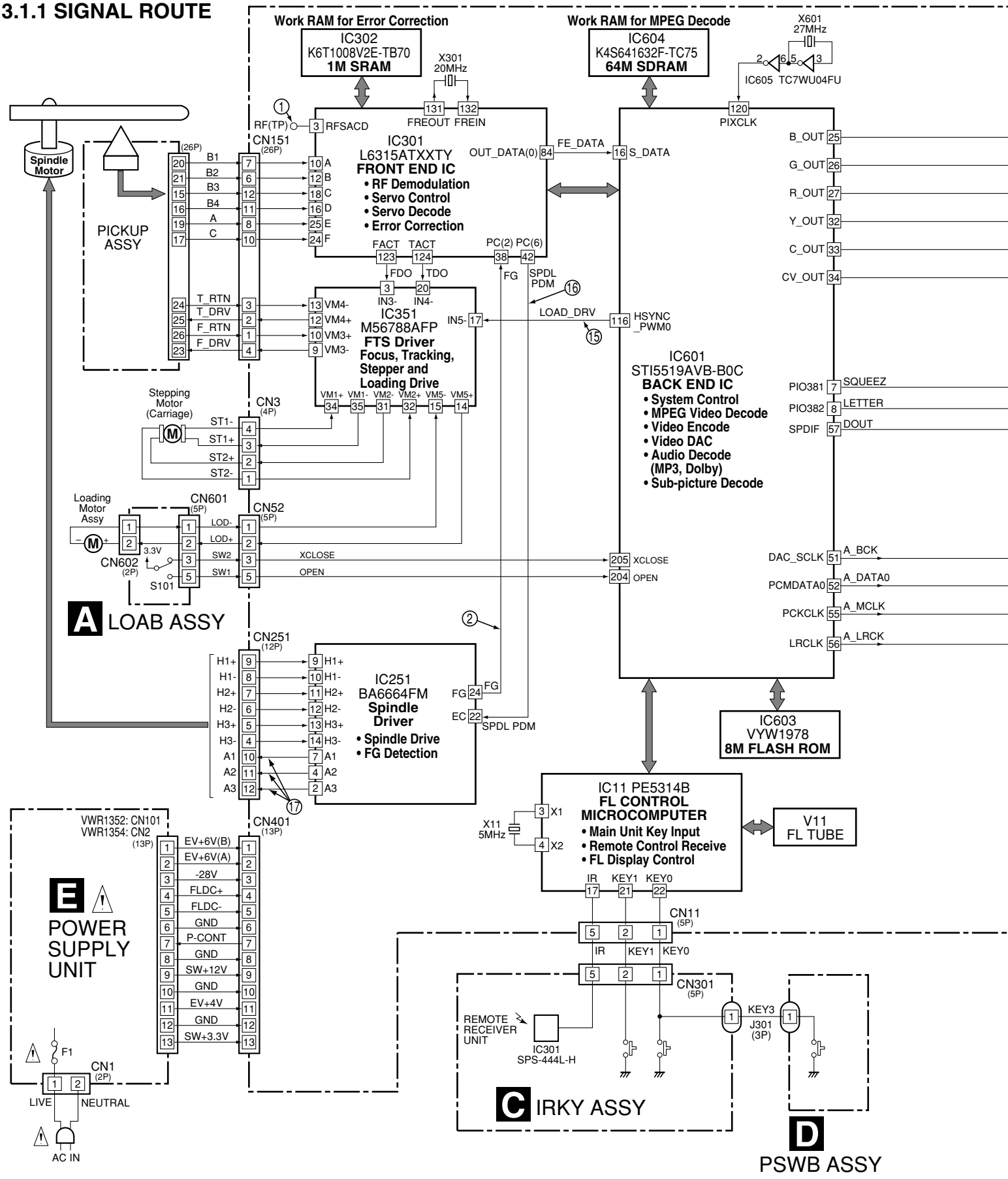
● TRAVERSE MECHANISM ASSY-S PARTS LIST

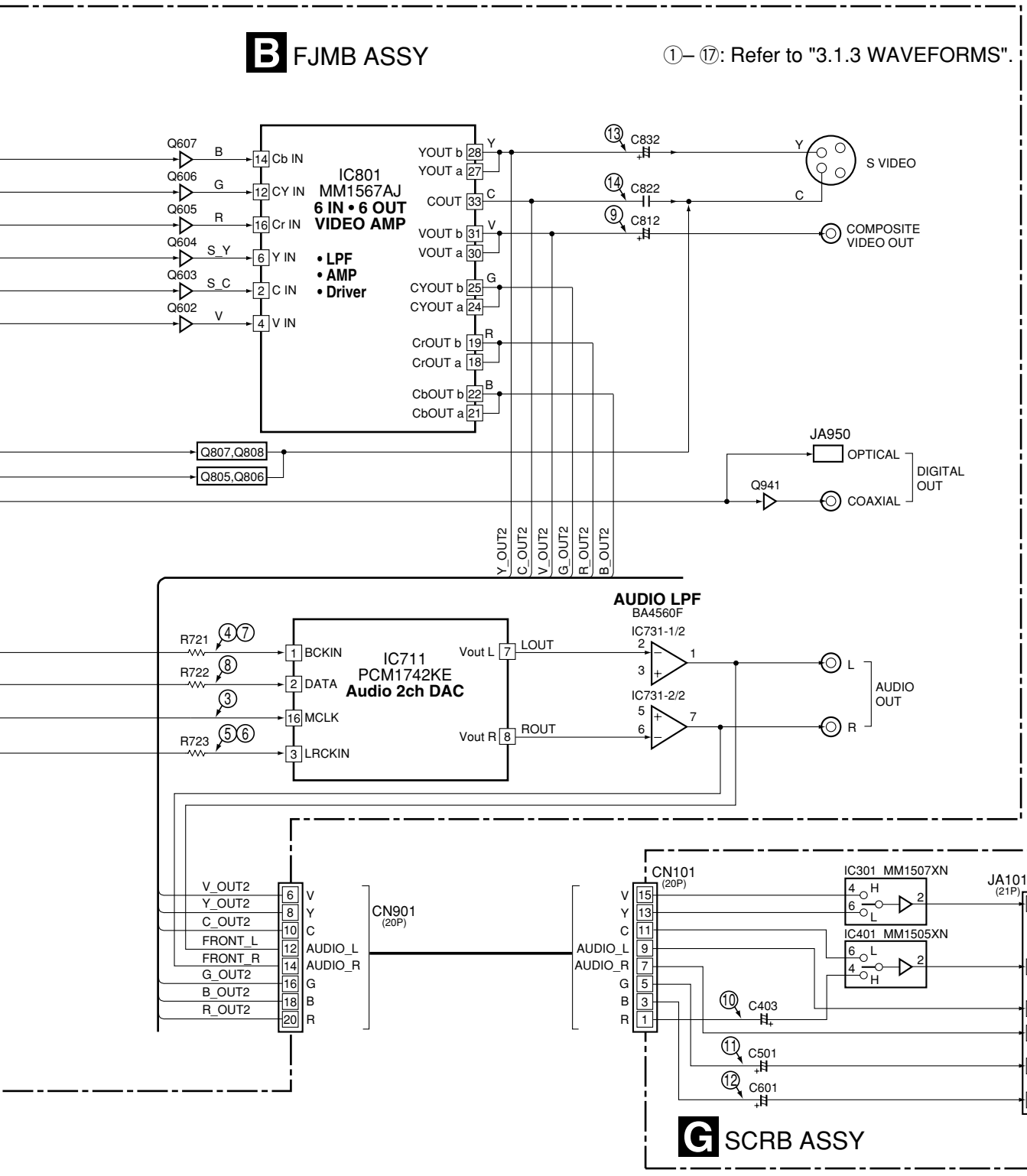
Mark	No.	Description	Part No.
	1	Spindle Motor	VXM1088 (or VXM1089)
	2	Stepping Motor	VXM1090 (or VXM1091)
	3	Pickup Assy-S	OXX8003
	4	Skew Screw	VBA1080
	5	Skew Spring	VBH1335
	6	Guide Bar	VLL1514
	7	Sub Guide Bar	VLL1515
	8	Hold Spring	VNC1017
	9	Joint Spring	VNC1019
	10	Support Spring	VNC1020
NSP	11	Mechanism Chassis	VNE2248
	12	Slider	VNL1811
	13	Spacer	VNL1913
	14	Joint	VNL1914
	15	FFC Holder	VNL1915
	16	Screw	BBZ20P050FZK
	17	Tapping Screw	OBA8009
	18	Screw	PMA26P100FMC
	19	Damper Sheet	VEB1335

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

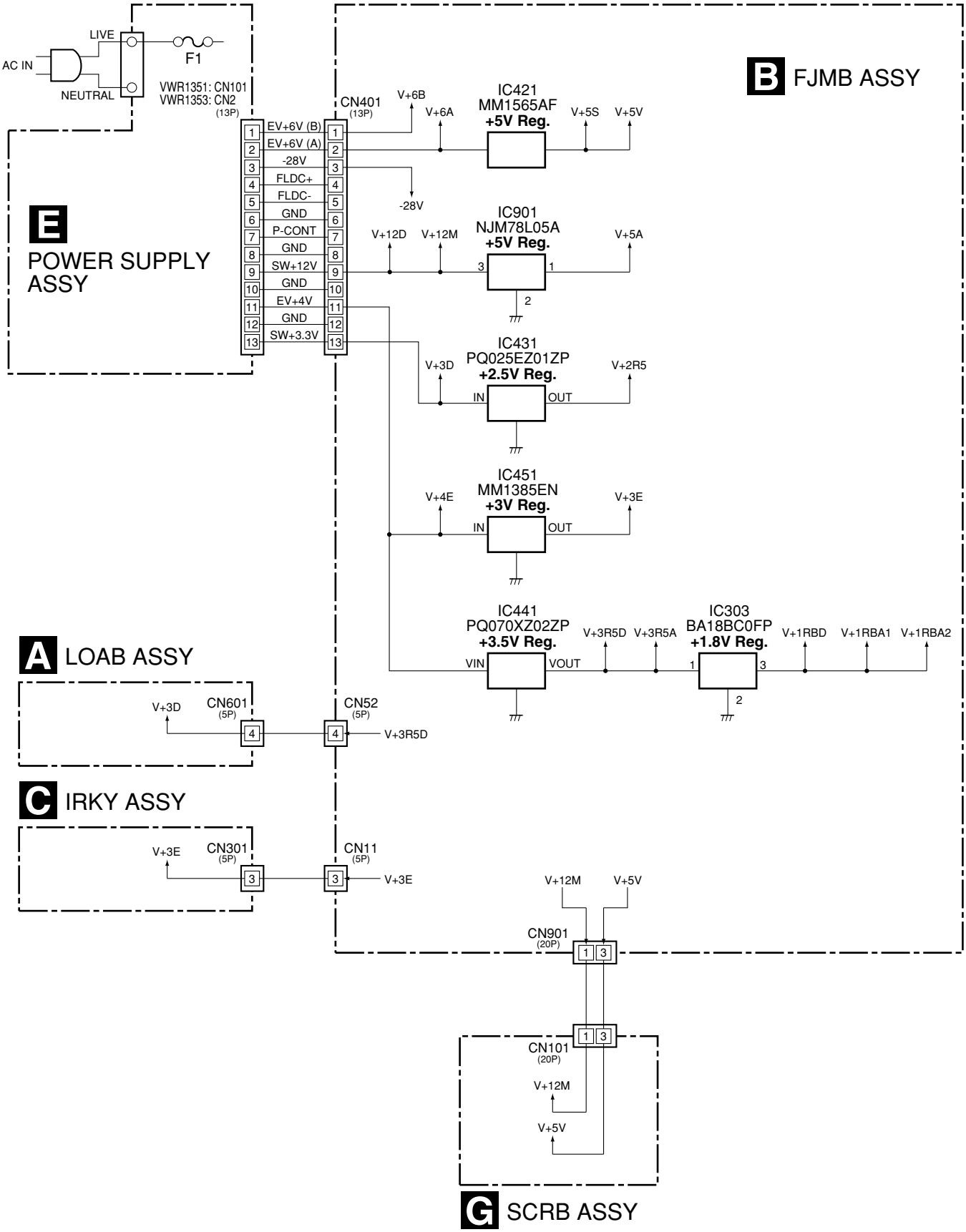
3.1 BLOCK DIAGRAM

3.1.1 SIGNAL ROUTE




B FJMB ASSY
①– ⑰: Refer to "3.1.3 WAVEFORMS".
IC801
MM1567AJ
6 IN • 6 OUT
VIDEO AMP
• LPF
• AMP
• Driver
Cb IN
CY IN
Cr IN
Y IN
C IN
V IN
YOUT b
YOUT a
COUT
VOUT b
VOUT a
CYOUT b
CYOUT a
CrOUT b
CrOUT a
CbOUT b
CbOUT a
C832
C822
C812
S VIDEO
COMPOSITE VIDEO OUT
Q807,Q808
Q805,Q806
JA950
OPTICAL
COAXIAL
DIGITAL OUT
Q941
Y_OUT2
C_OUT2
V_OUT2
G_OUT2
R_OUT2
B_OUT2
AUDIO LPF
BA4560F
IC731-1/2
IC731-2/2
IC711
PCM1742KE
Audio 2ch DAC
BCKIN
DATA
MCLK
LRCKIN
Vout L
Vout R
LOUT
ROUT
L
R
AUDIO OUT
CN901
(20P)
CN101
(20P)
IC301 MM1507XN
IC401 MM1505XN
JA101
(21P)
EURO CONNECTOR
V/Y
R/C
AUD. LOUT
AUD. ROUT
G
B
C403
C501
C601
G SCRB ASSY

3.1.2 POWER SUPPLY BLOCK



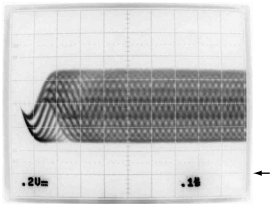
3.1.3 WAVEFORMS

Note : The encircled numbers denote measuring point in the schematic diagram.

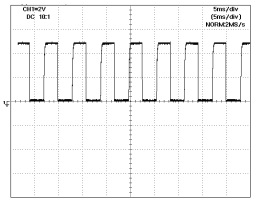
Measurement condition : No. 1 to 2 and 9 to 14 : reference A1 (DVD), T2-chp 19, Color-bar
No. 3 to 8 : reference A1 (DVD), T2-chp 1

B FJMB ASSY

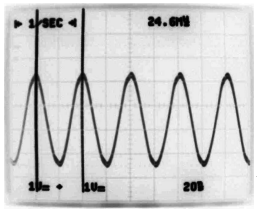
① IC301 - pin 3 [RF]
V: 200mV/div. H: 0.1µsec/div.



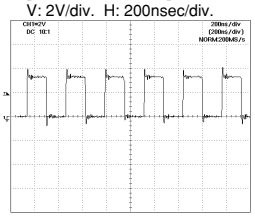
② IC251 - pin 24 [FG]
V: 1V/div. H: 5msec/div.



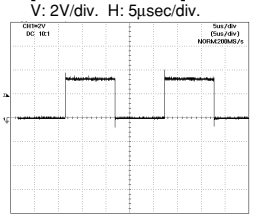
③ IC711 - pin 16 [AUDIO DAC -MCK]
V: 1V/div. H: 20nsec/div.



④ Foot of R721 (IC711 - pin 1)
[AUDIO DAC -BCK]
V: 2V/div. H: 200nsec/div.



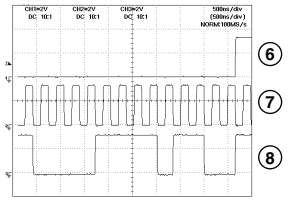
⑤ Foot of R723 (IC711 - pin 3)
[AUDIO DAC -LRCK]
V: 2V/div. H: 5µsec/div.



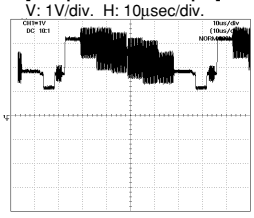
⑥ Foot of R723 (IC711 - pin 3)
[AUDIO DAC -LRCK]
V: 2V/div. H: 500nsec/div.

⑦ Foot of R721 (IC711 - pin 1)
[AUDIO DAC -BCK]
V: 2V/div. H: 500nsec/div.

⑧ Foot of R722 (IC711 - pin 2)
[AUDIO DAC -DATA]
V: 2V/div. H: 500nsec/div.
(Waveform of DATA is unsettled.)

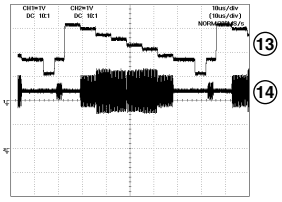


⑨ Foot of C812 (IC801 - pin 30, 31)
[Composite Video output]
V: 1V/div. H: 10µsec/div.



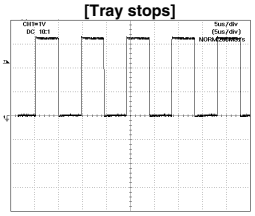
⑬ Foot of C832 (IC801 - pin 27, 28)
[S Video output -Y]
V: 1V/div. H: 10µsec/div.

⑭ Foot of C822 (IC801 - pin 33)
[S Video output -C]
V: 1V/div. H: 10µsec/div.

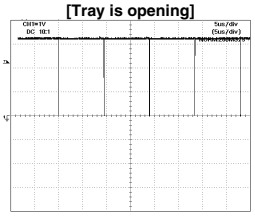


⑮ IC601 - pin 116 [LOAD_DRV]
V: 1V/div. H: 5µsec/div.

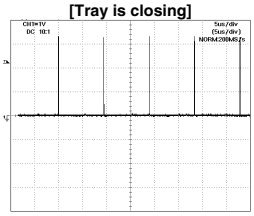
[Tray stops]



[Tray is opening]

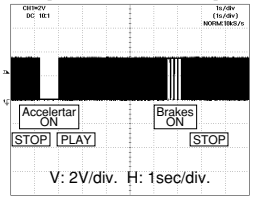


[Tray is closing]



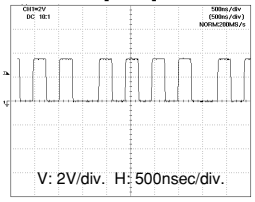
⑯ IC301 - pin 42 [SPDL_PDM]

[STOP→PLAY→STOP]



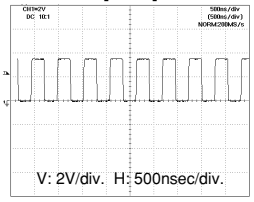
V: 2V/div. H: 1sec/div.

[PLAY]



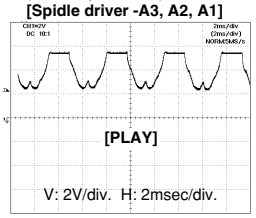
V: 2V/div. H: 500nsec/div.

[STOP]



V: 2V/div. H: 500nsec/div.

⑰ CN251 - pin 12, 11, 10
(IC251 - pin 2, 4, 7)
[Spidle driver -A3, A2, A1]



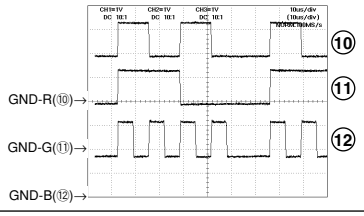
[PLAY]
V: 2V/div. H: 2msec/div.

G SCRB ASSY

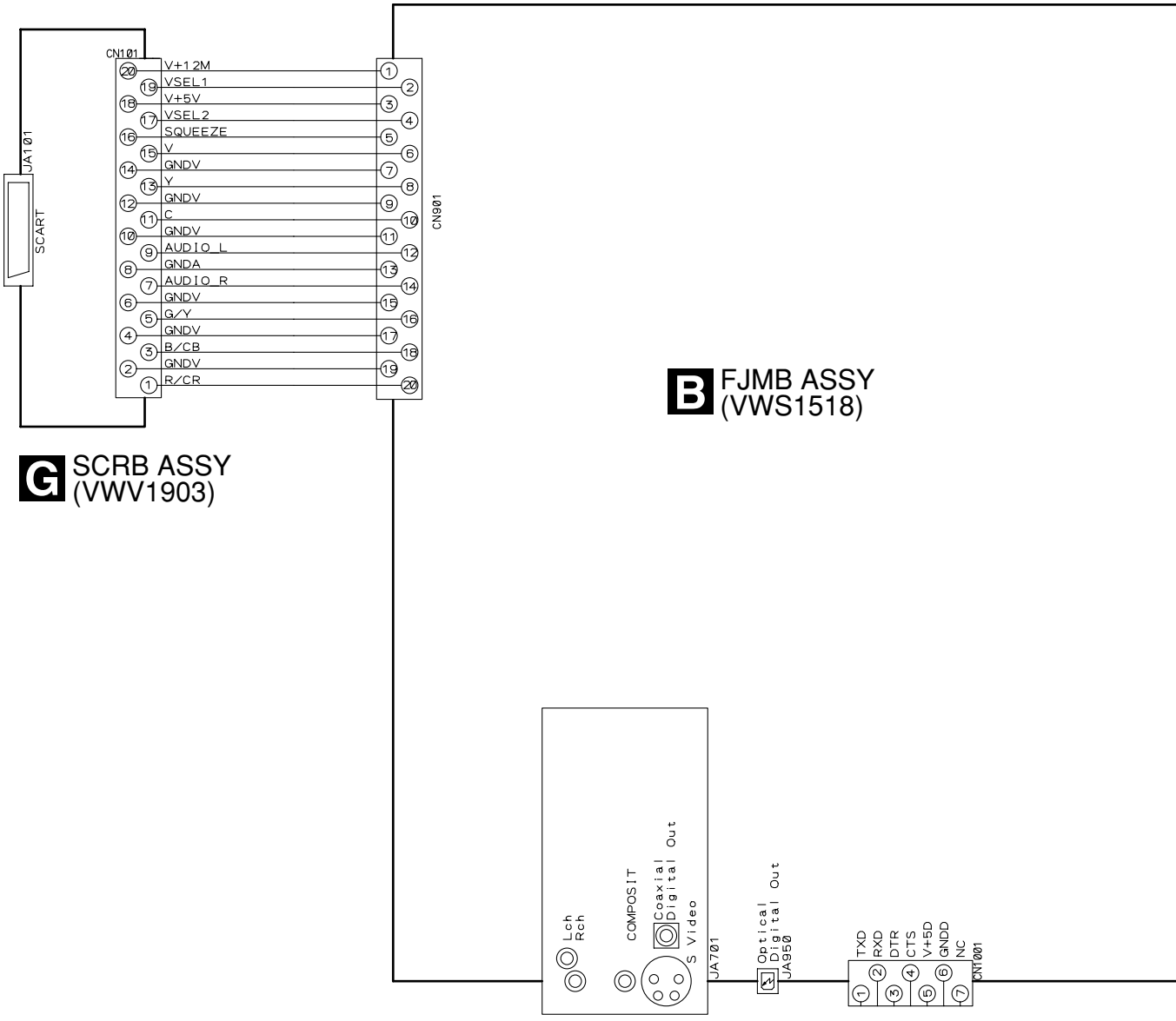
⑩ Foot of C403 (FJMB: IC801 - pin 21, 22)
[Video output -R]
V: 2V/div. H: 10µsec/div.

⑪ Foot of C501 (FJMB: IC801 - pin 24, 25)
[Video output -G]
V: 1V/div. H: 10µsec/div.

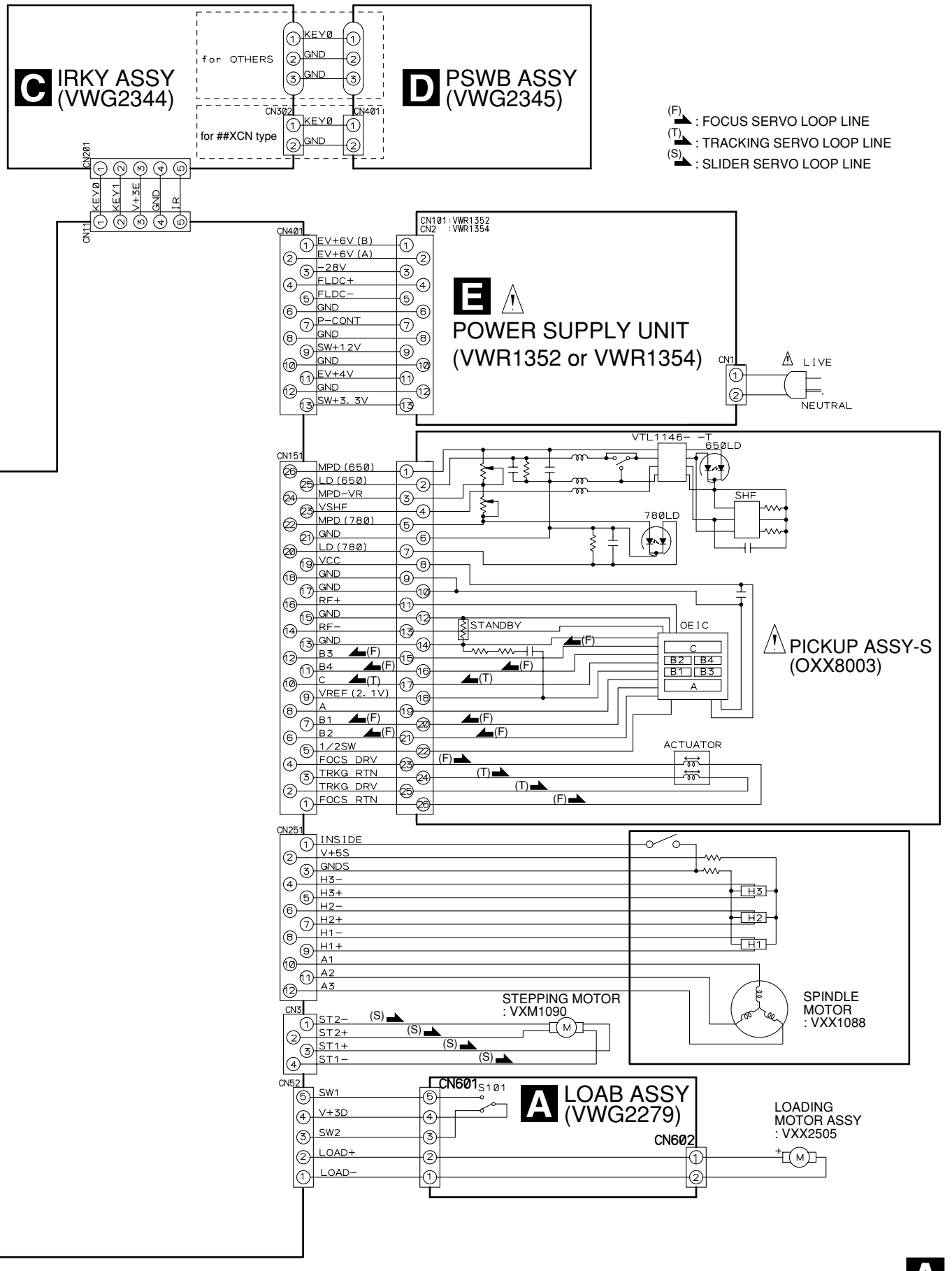
⑫ Foot of C601 (FJMB: IC801 - pin 18, 19)
[Video output -B]
V: 2V/div. H: 10µsec/div.



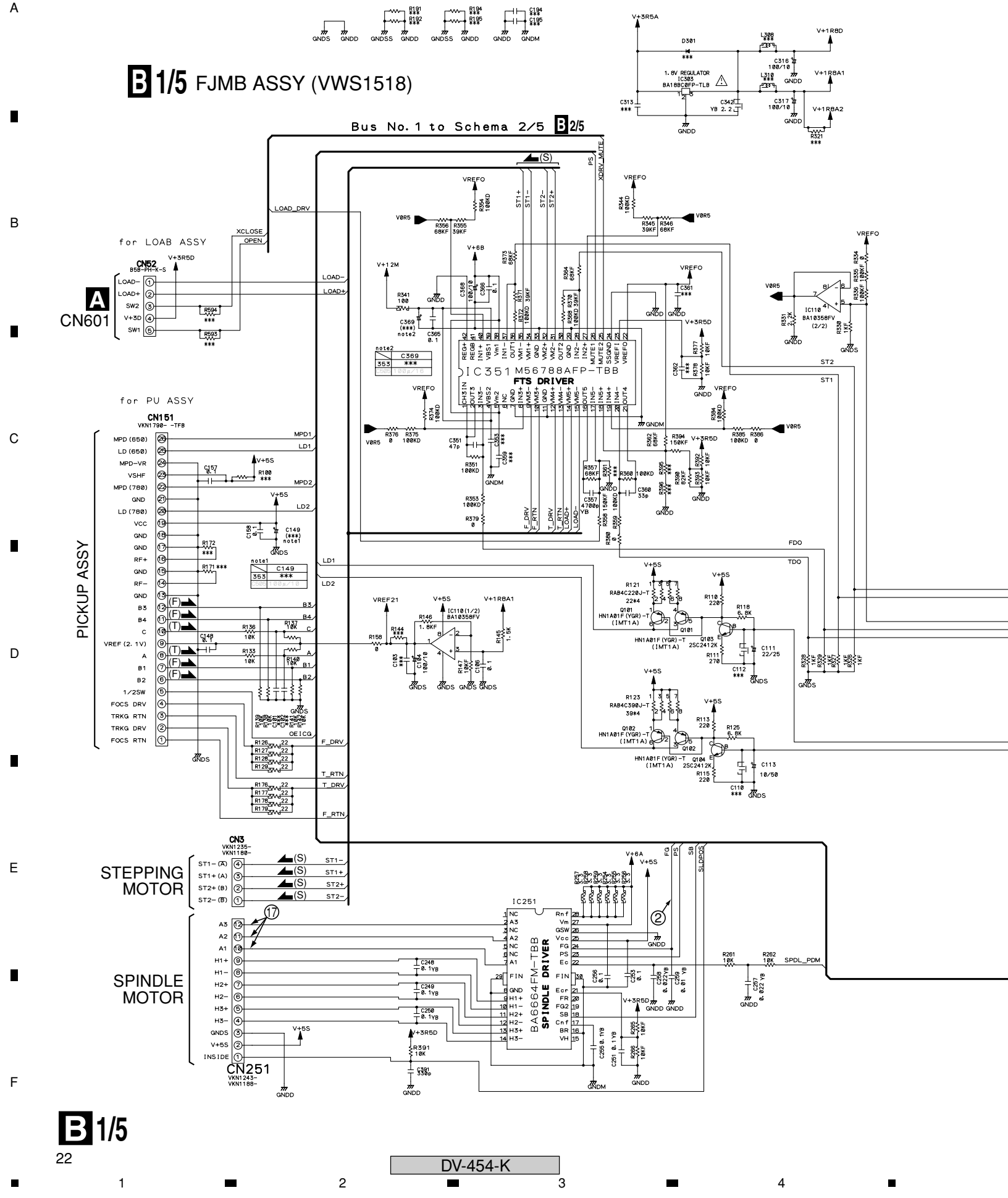
3.2 LOAB ASSY and OVERALL WIRING DIAGRAM



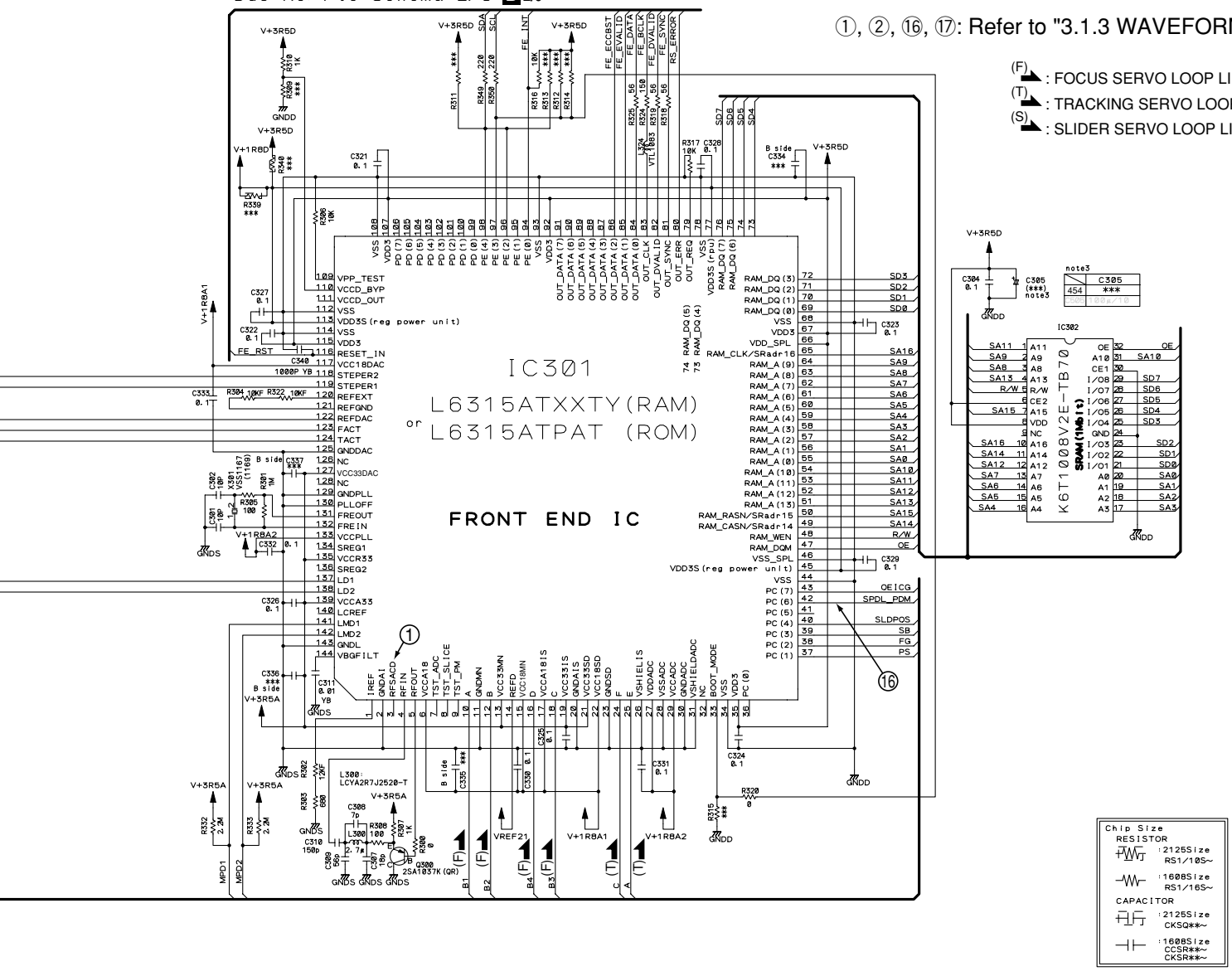
Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST"



3.3 FJMB ASSY 1/5 [FRONT END BLOCK]



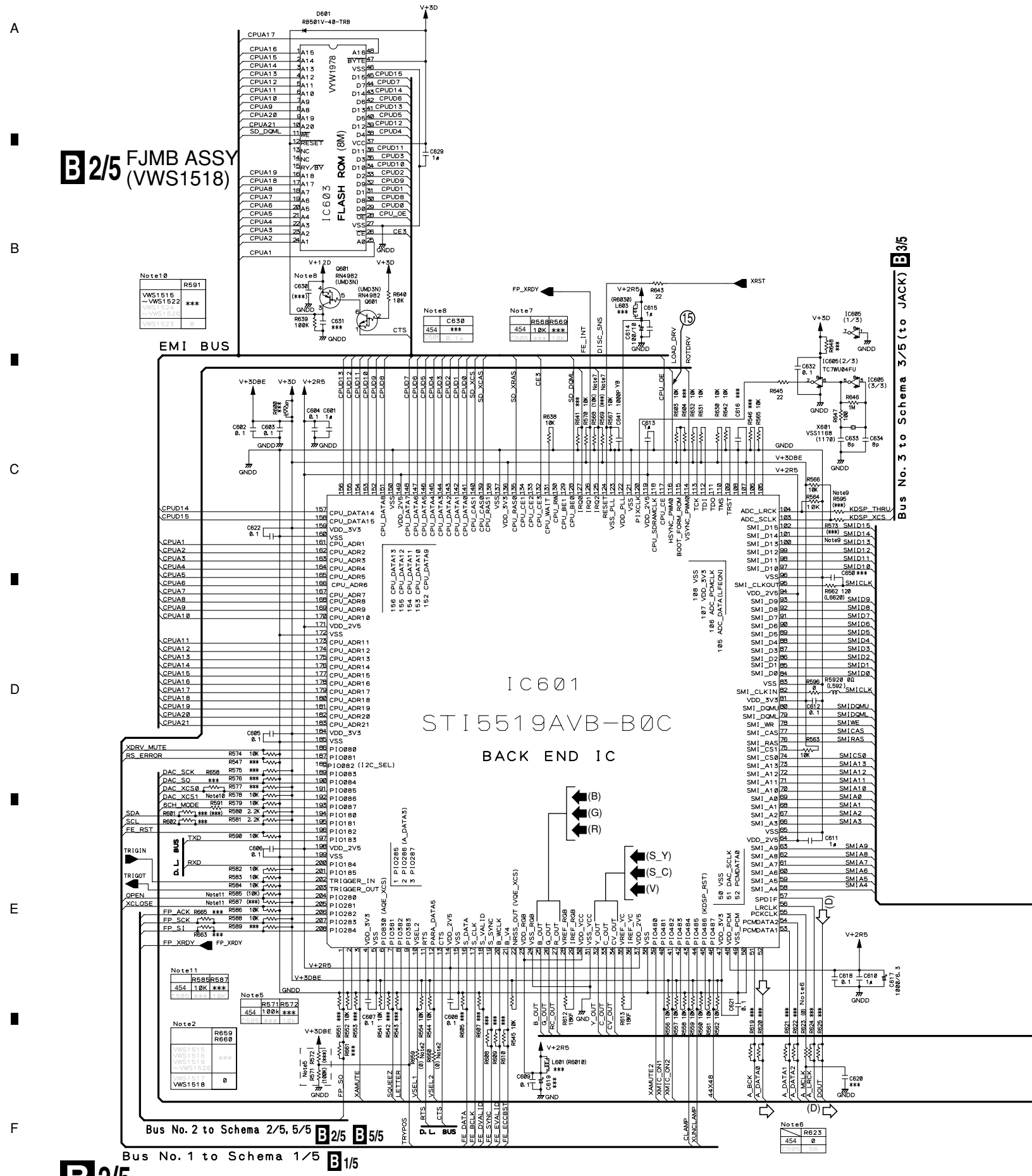
Bus No. 1 to Schema 2/5 B 2/5

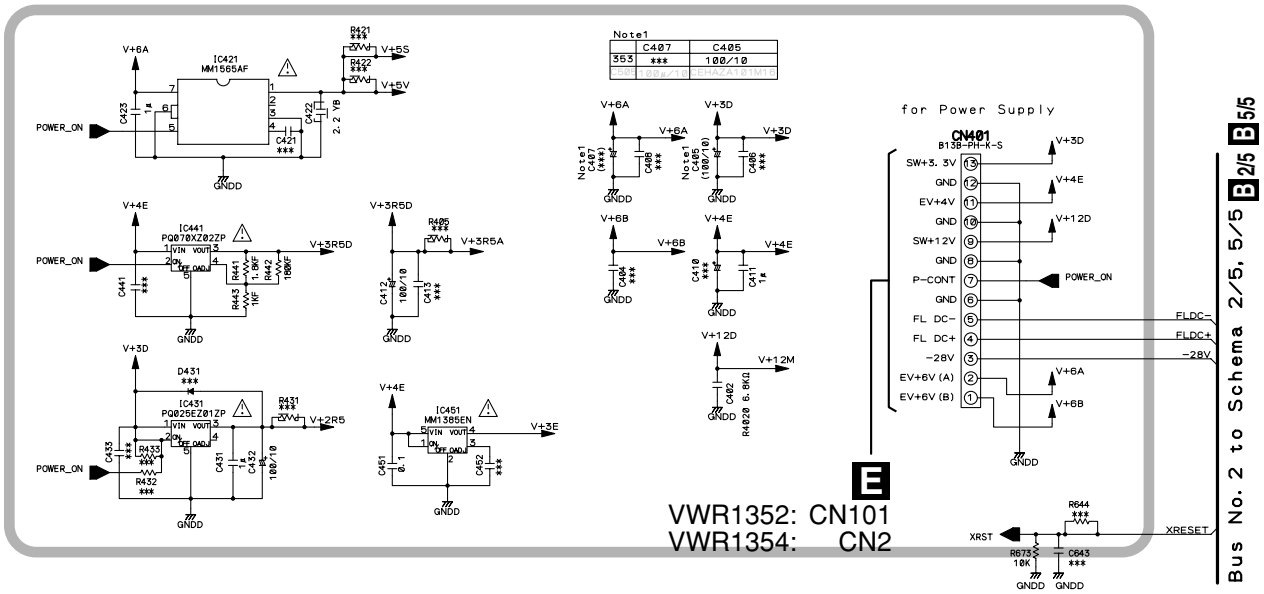


***: parts not mounted

B 1/5

3.4 FJMB ASSY 2/5 [BACK END BLOCK]

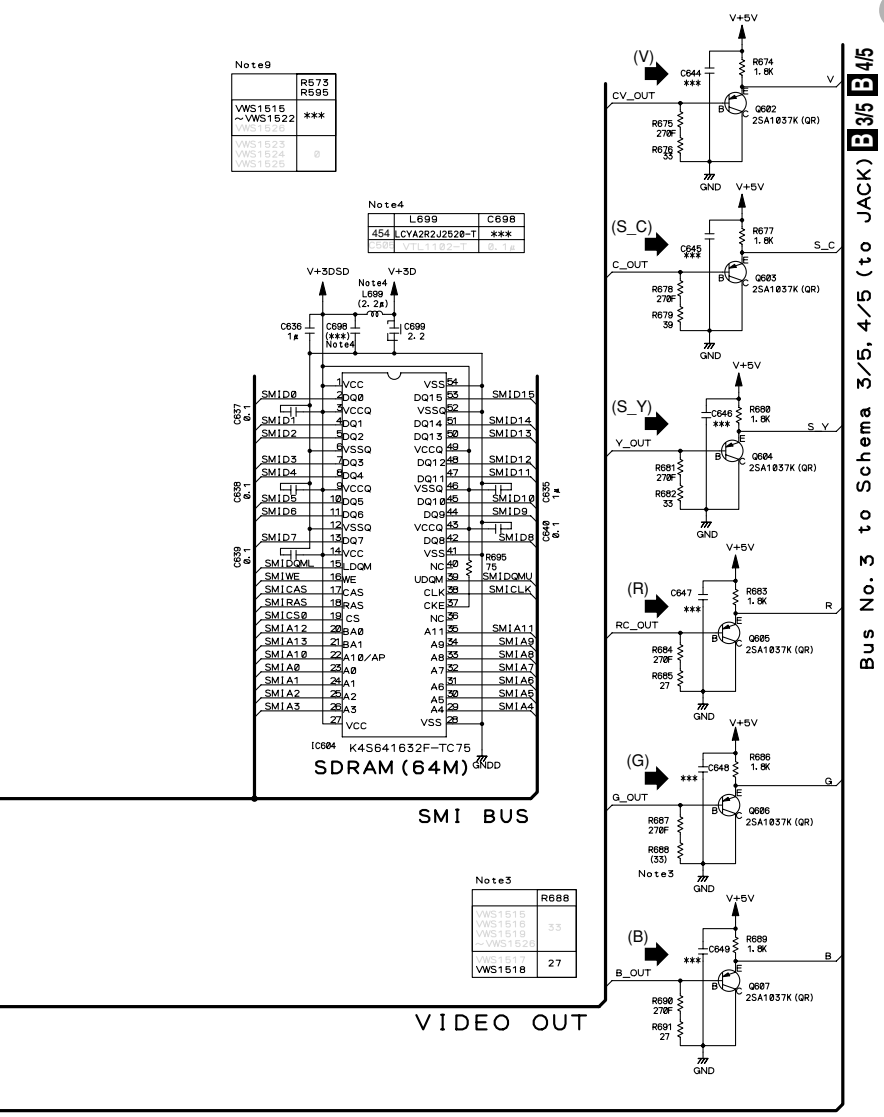


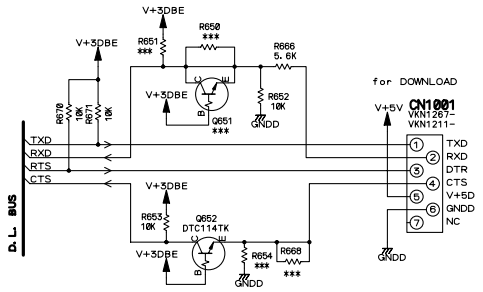


: The power supply is shown with the marked box.

⑮: Refer to "3.1.3 WAVEFORMS".

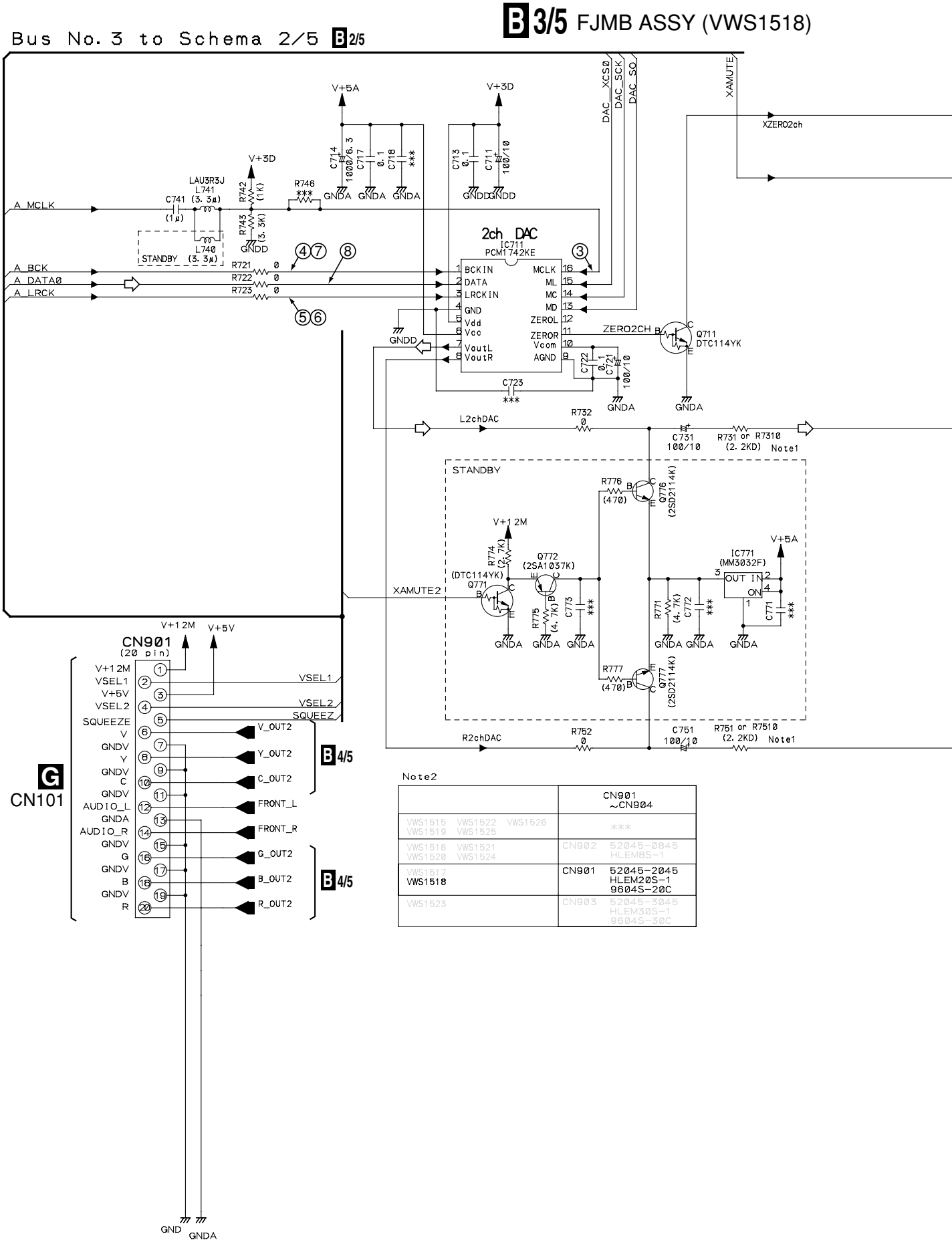
(V) : V SIGNAL ROUTE
(S_C) : S-VIDEO OUT C SIGNAL ROUTE
(S_Y) : S-VIDEO OUT Y SIGNAL ROUTE
(R) : R SIGNAL ROUTE
(G) : G SIGNAL ROUTE
(B) : B SIGNAL ROUTE
: AUDIO SIGNAL ROUTE
(D) : AUDIO(DIGITAL) SIGNAL ROUTE





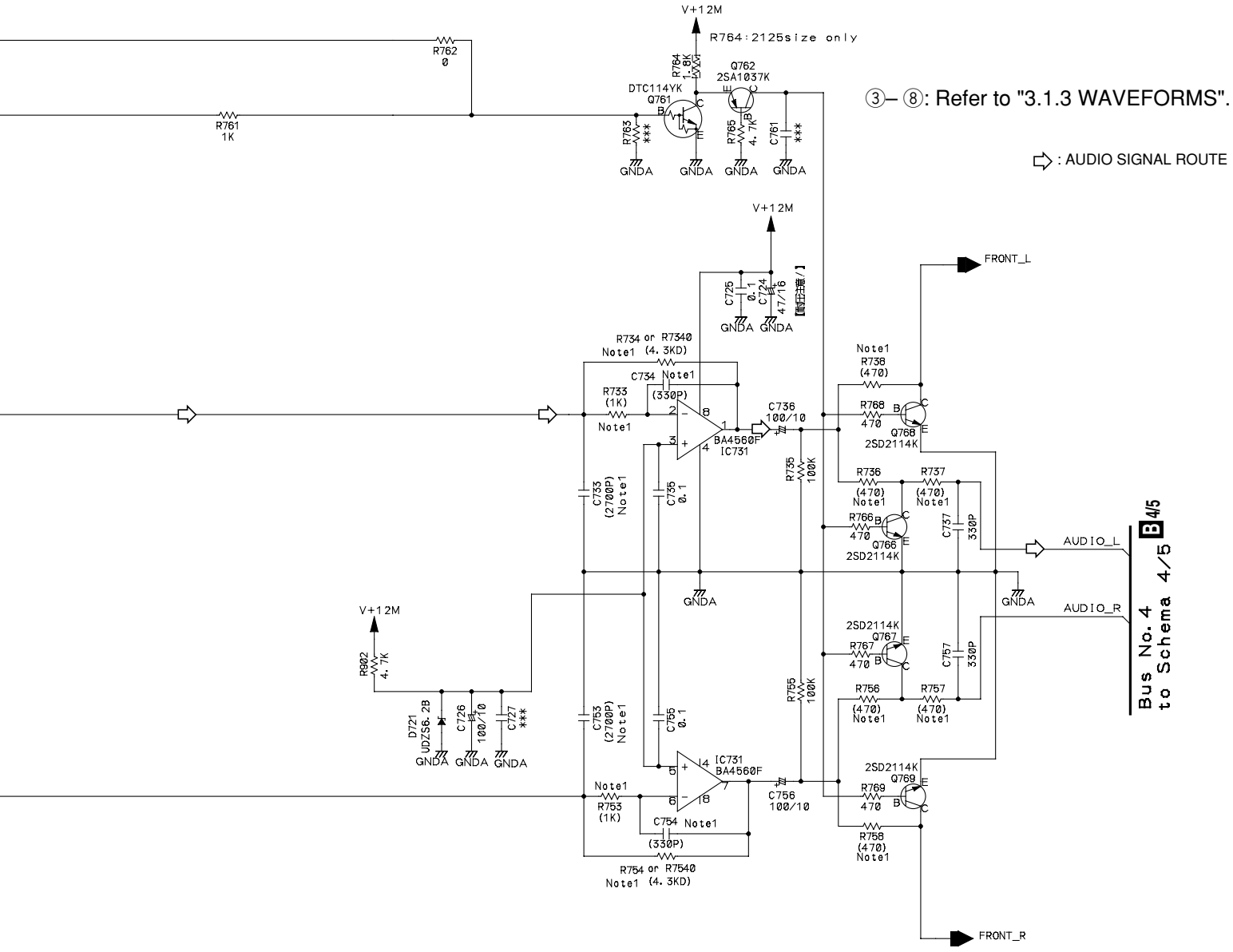
***: parts not mounted

3.5 FJMB ASSY 3/5 [AUDIO BLOCK]



Note2

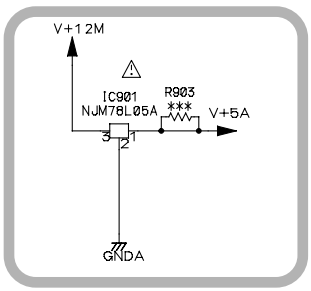
	CN901 ~CN904
VWS1515 VWS1522 VWS1526 VWS1519 VWS1525	***
VWS1516 VWS1521 VWS1520 VWS1524	CN902 52045-0845 HLEM8S-1
VWS1517 VWS1518	CN901 52045-2045 HLEM20S-1 9604S-20C
VWS1523	CN903 52045-3045 HLEM30S-1 9604S-30C



Note1

	R731 R751	R733 R753	R734 R754	C733 C753	C734 C754	R736 R737 R756 R757	R738 R758	R739 R759
VWS1515 VWS1521 VWS1516 VWS1522	2.2K	1K	4.3K	2700P YB	VCH1226 VCH1227 (330P)	470	***	***
VWS1517 VWS1518							470	***
VWS1526							470	470
VWS1519 VWS1524 VWS1520 VWS1525	16K	22K	27K	330P CH	33P	220	***	***
VWS1523							220	220

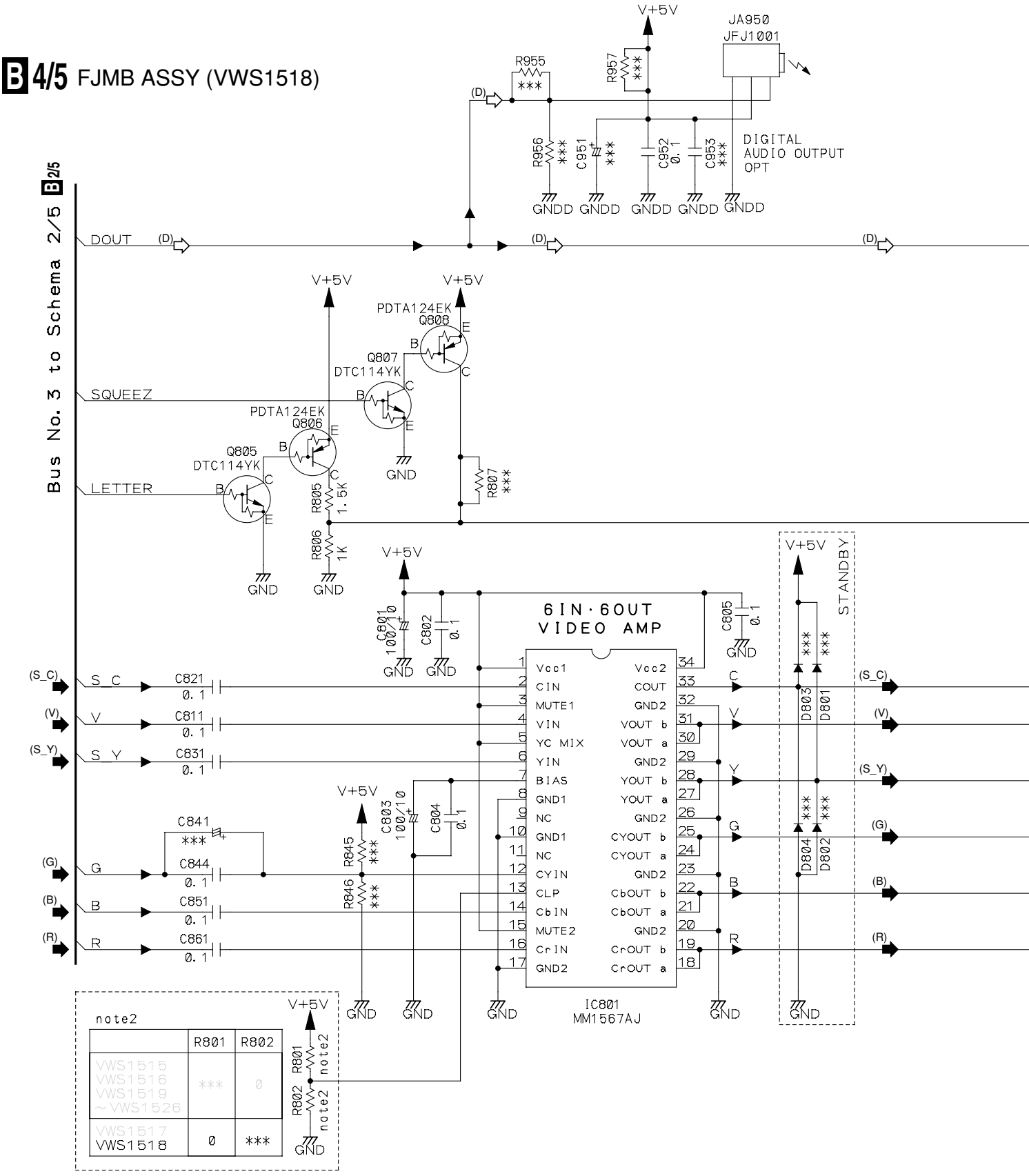
R731 , R751 , R734 , R754 : RN1/16SE****D
R7310, R7510, R7340, R7540: RD1/4PU***J

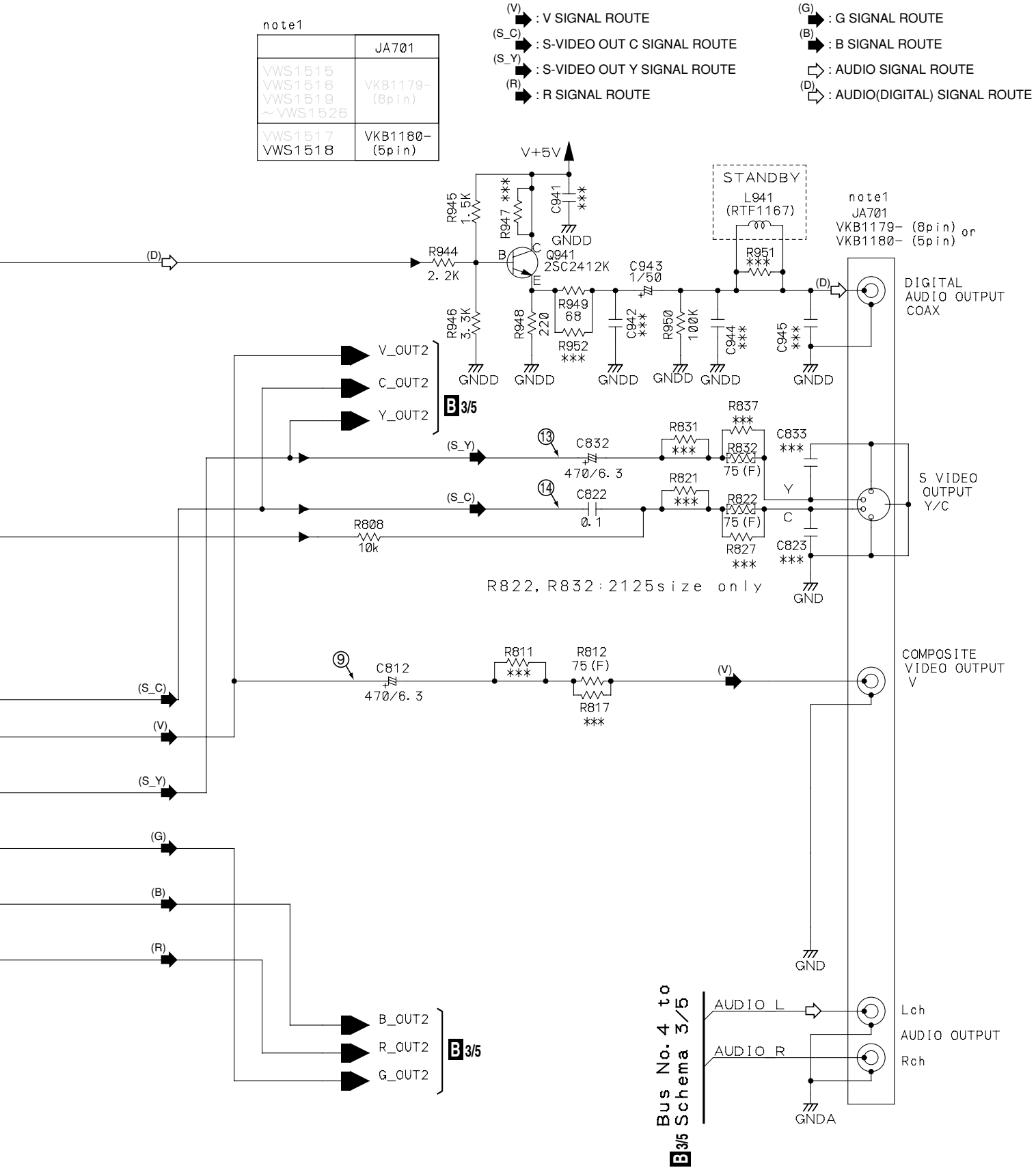


: The power supply is shown with the marked box.

***: parts not mounted

3.6 FJMB ASSY 4/5 [VIDEO BLOCK]





⑨, ⑬, ⑭: Refer to "3.1.3 WAVEFORMS".

3.7 FJMB ASSY 5/5 [FL CONTROL BLOCK]

B 5/5 FJMB ASSY (VWS1518)

Note1

Series	Model No.	A'ssy No.	Destination		Model Select					
			R27	R28	R35	R36	R37	R38	R39	R40
353	DV-353-*/K*, 25*/K*	VWS1515	33K	5.6K	***	Ø	***	Ø	***	Ø
	DV-353-*/JJ	VWS1516	***	Ø	***	Ø	***	Ø	***	Ø
	DV-350-*/W*	VWS1517	3.3K	4.7K	***	Ø	***	Ø	***	Ø
	DV-454-*/W* 550/W*	VWS1518	3.3K	4.7K	***	Ø	***	Ø	***	Ø
	DV-2500/RAM	VWS1519	5.6K	33K	***	Ø	***	Ø	***	Ø
	DV-3500/RAM	VWS1520	5.6K	33K	***	Ø	***	Ø	***	Ø
	DV-5500KD/RAM	VWS1523	5.6K	33K	***	Ø	***	Ø	Ø	***
	DV-355/LB	VWS1521	1.5K	1.2K	***	Ø	***	Ø	***	Ø
	DV-555K/LB	VWS1524	1.5K	1.2K	***	Ø	***	Ø	Ø	***

Note3 353 series only

	R44	R74
VWS1515 ~VWS1522	Ø	***
VWS1523 VWS1524 VWS1525	***	Ø

Note2 353 series only

	R47	R48
PIONEER	***	Ø
OEM	Ø	***

(R45:checker mode)

IC11 PE5314B
FL CONTROL MICROCOMPUTER

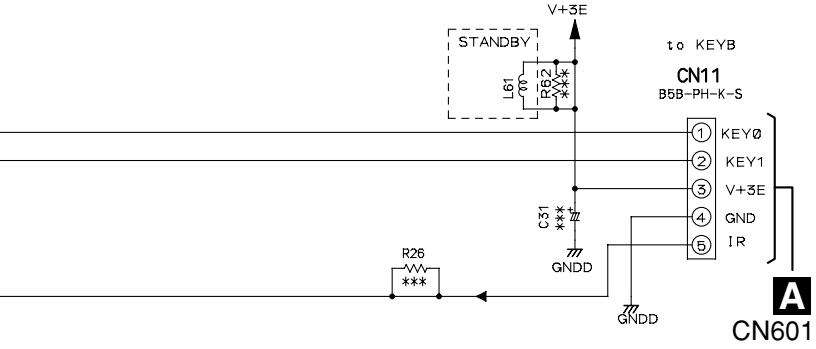
FL HOLDER
VNK4954- (XJ)
VNK4980- (XU, XQ)
VNK4995- (XCN)

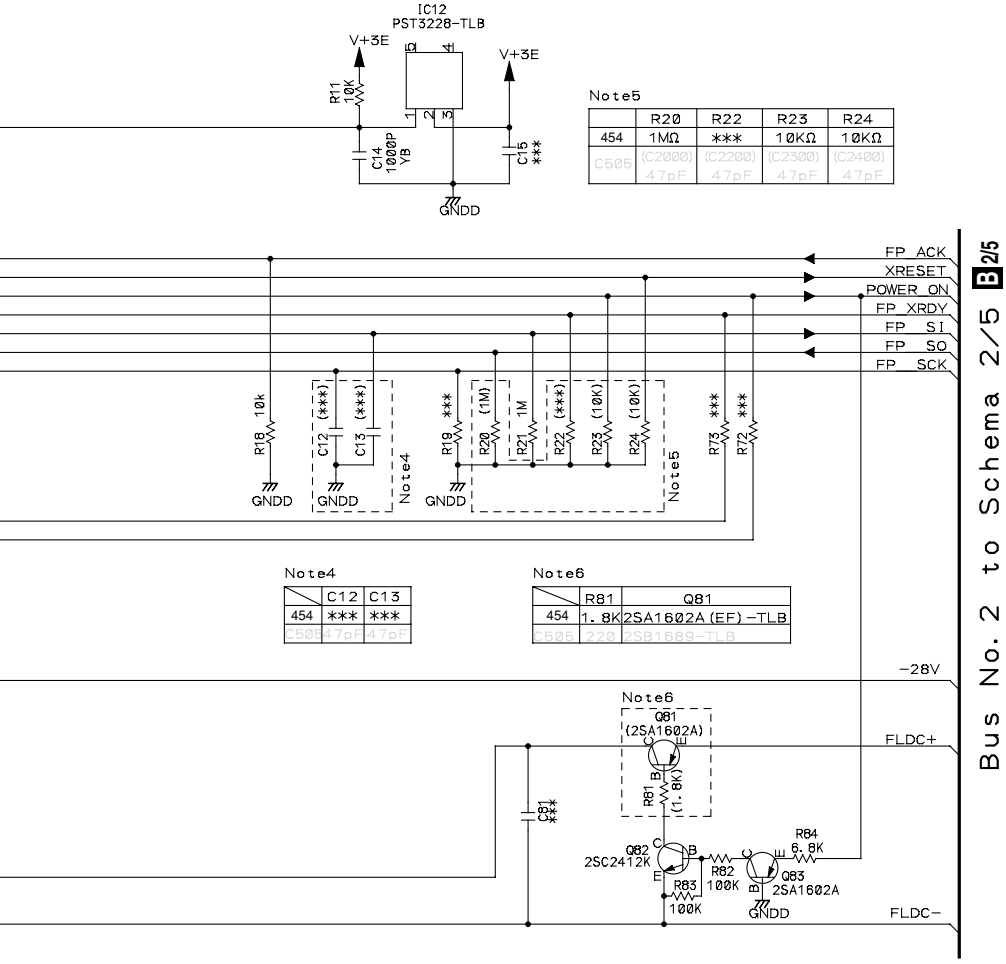
V11 VAW1070- (VAW1071-) FL TUBE

PCB BINDER VEF1040-

Note1

Series	Model No.	A'ssy No.	Destination		Model Select					
			R27	R28	R35	R36	R37	R38	R39	R40
353	DV-355*/R*, /B*	VWS1522	6.8K	2.7K	***	0	***	0	***	0
	DV-555K/R*, /B*	VWS1525	6.8K	2.7K	***	0	***	0	0	***
C505	DV-C505	VWS1526	***	***	***	***	***	***	***	***





Note5

	R20	R22	R23	R24
454	1MΩ	***	10KΩ	10KΩ
C505	(C2000) 47pF	(C2200) 47pF	(C2500) 47pF	(C2400) 47pF

Note4

	C12	C13
454	***	***
C505	47pF	47pF

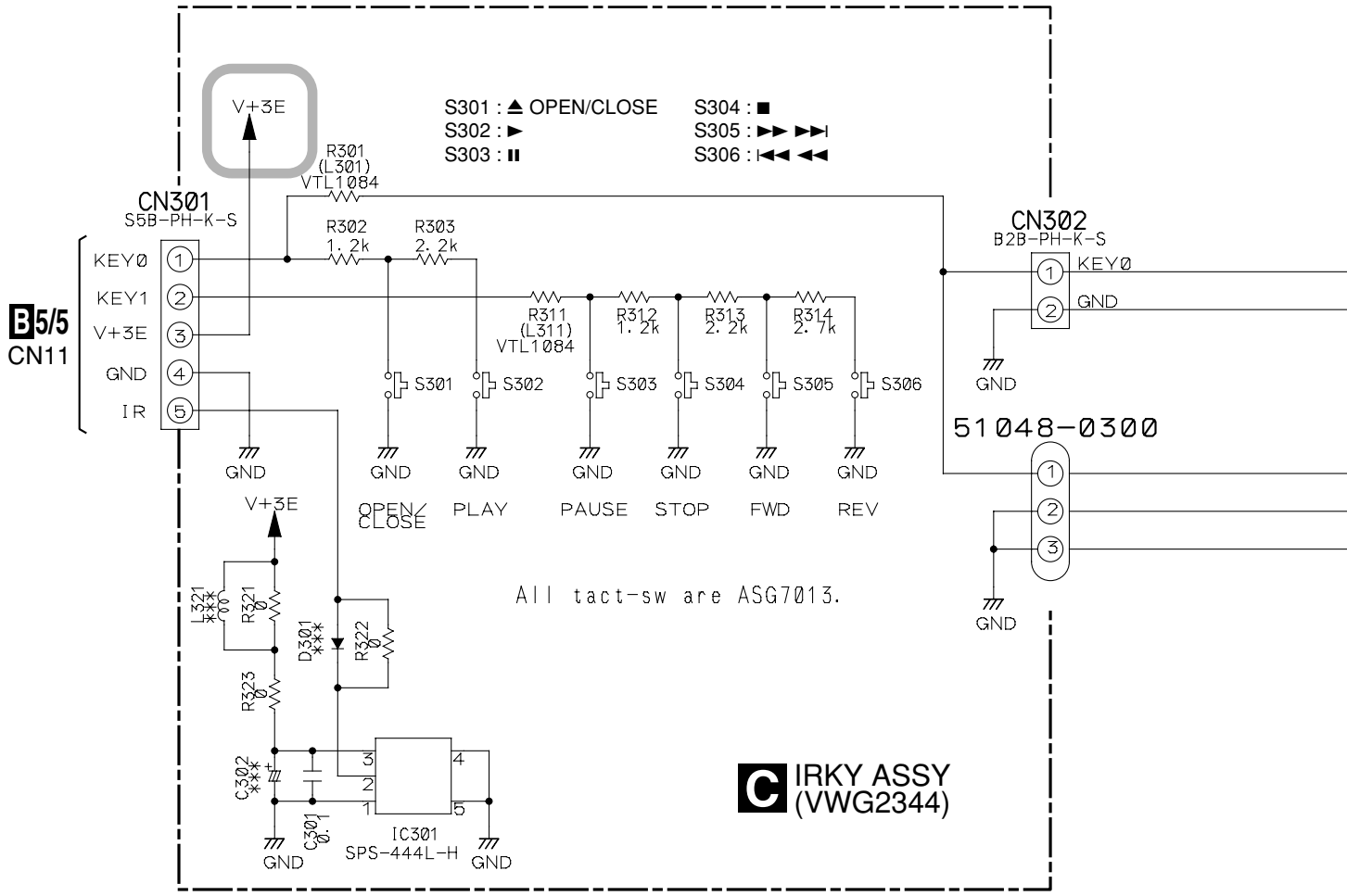
Note6

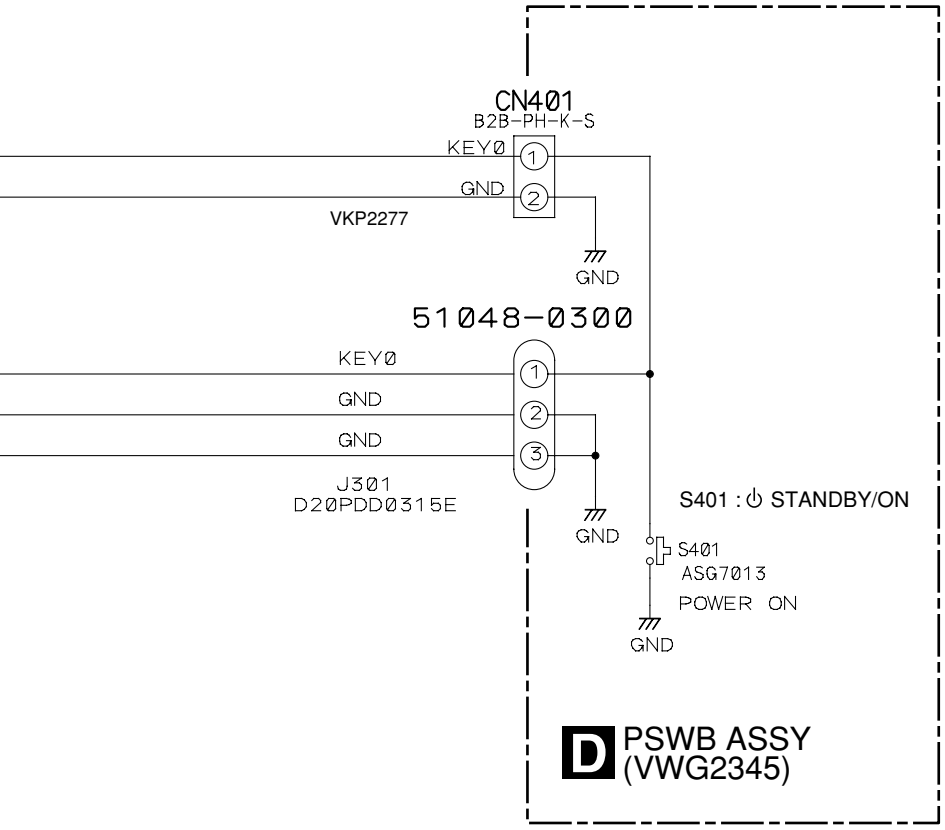
	R81	Q81
454	1.8K	2SA1602A(EF)−TLB
C505	220	2SB1689−TLB

except [ ] : 353 series only

***: parts not mounted

3.8 IRKY and PSWB ASSYS





. *** : parts not mounted.

	for OTHERS	for ##XCN type
CN302	×	○
CN401	×	○
J301	○	×
51048-0300	○	×
VKP2277	×	○

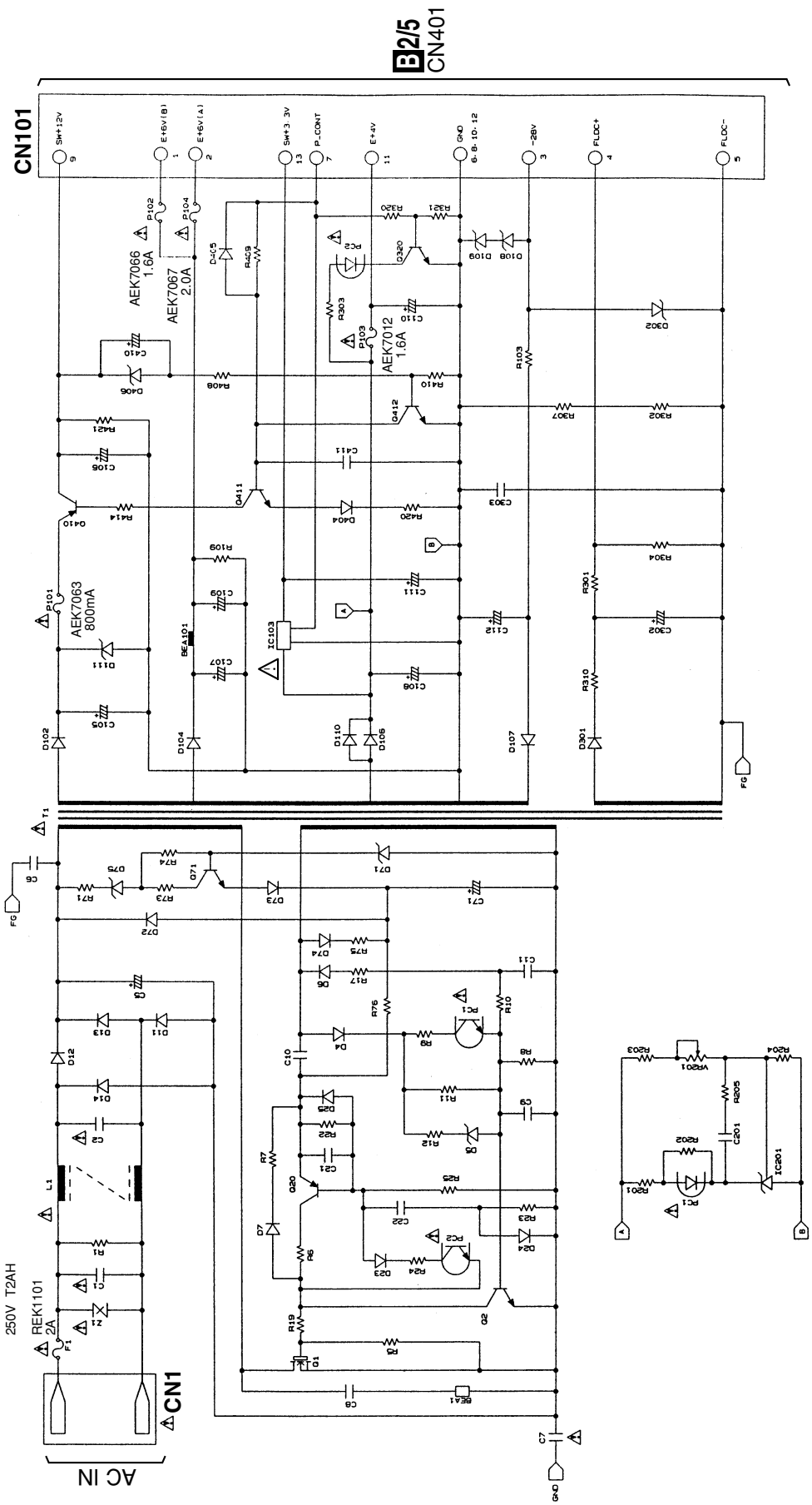
: The power supply is shown with the marked box.

3.9 POWER SUPPLY UNIT (VWR1352)

E POWER SUPPLY UNIT (VWR1352)

《 **NOTE OF SPARE PARTS IN POWER SUPPLY (SYPS) UNIT** 》

- In case of repairing, use the described parts only to prevent an accident.
- Please write the red √ mark on the board when the primary section of POWER SUPPLY (SYPS) Unit is repaired.
- Please take care to keep the space, not touching other parts when replacing the parts.

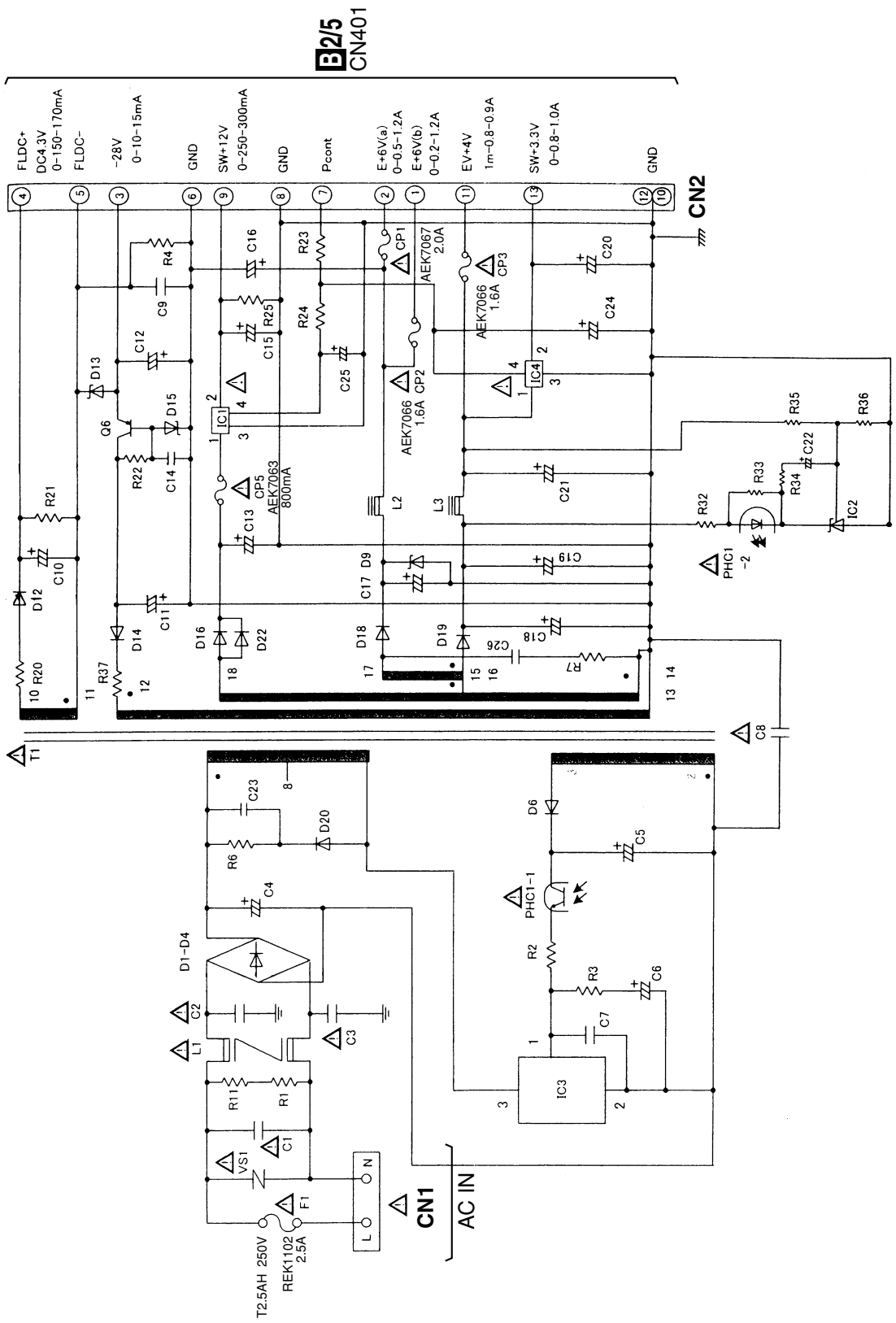


3.10 POWER SUPPLY UNIT (VWR1354)

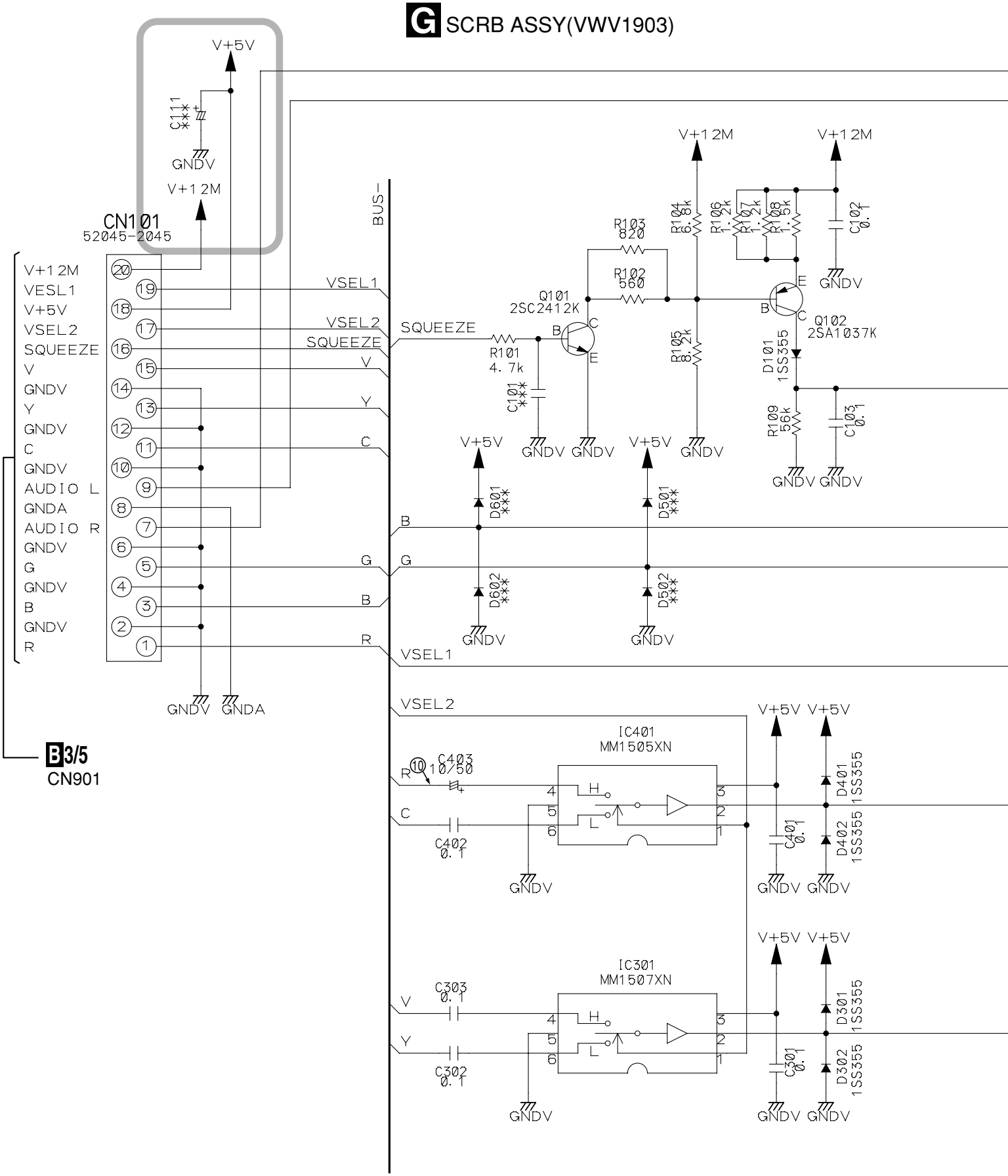
E POWER SUPPLY UNIT (VWR1354)

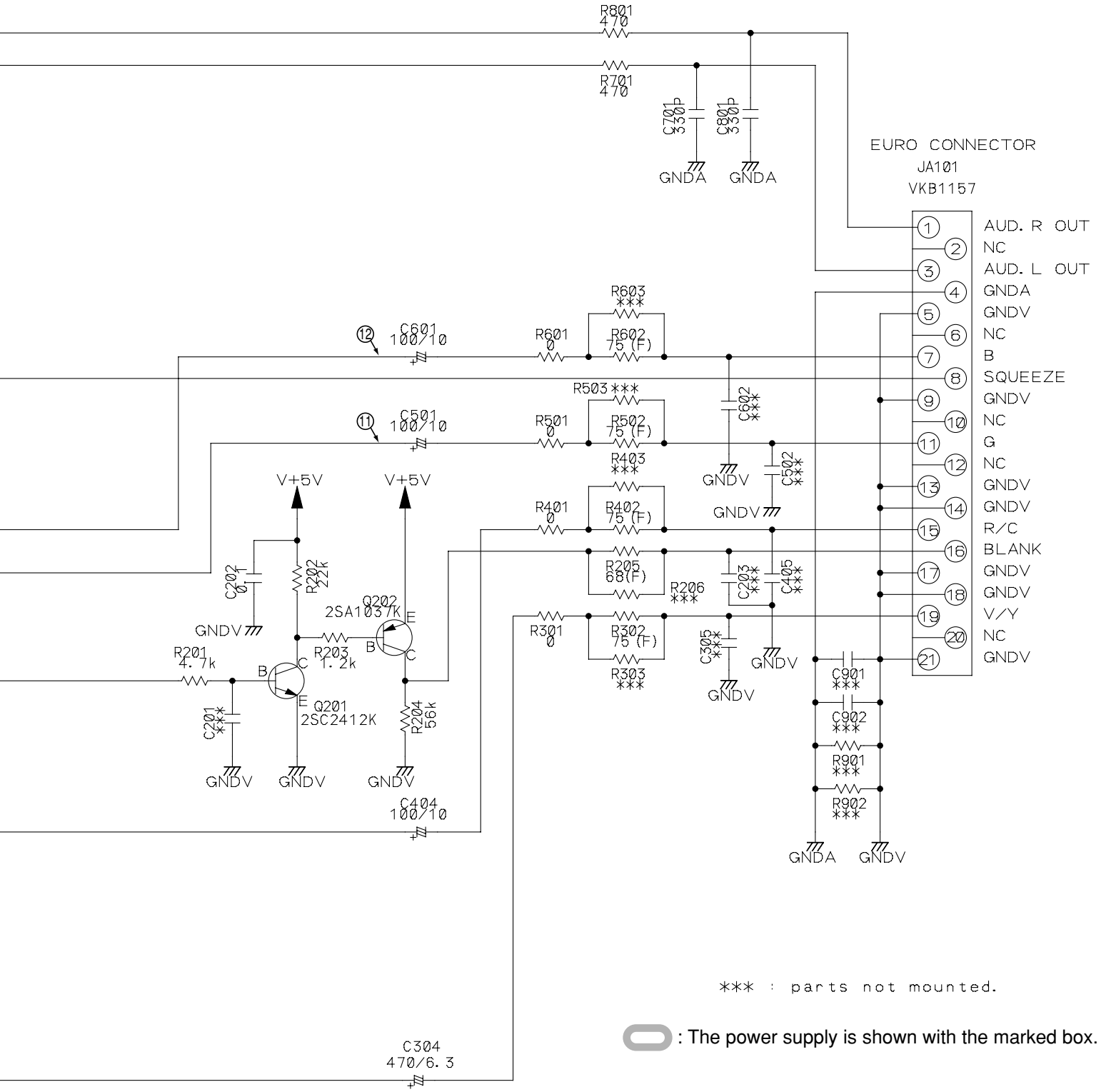
《 **NOTE OF SPARE PARTS IN POWER SUPPLY (SYPS) UNIT** 》

- In case of repairing, use the described parts only to prevent an accident.
- Please write the red √ mark on the board when the primary section of POWER SUPPLY (SYPS) Unit is repaired.
- Please take care to keep the space, not touching other parts when replacing the parts.



3.11 SCRB ASSY





*** : parts not mounted.

: The power supply is shown with the marked box.

⑩– ⑫: Refer to "3.1.3 WAVEFORMS".

A

B

C

D

E

F

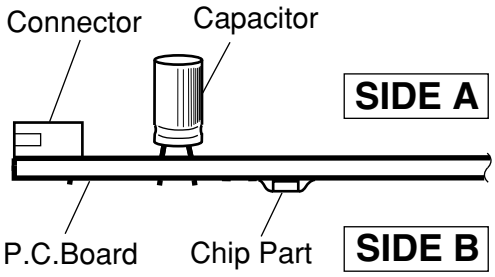
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

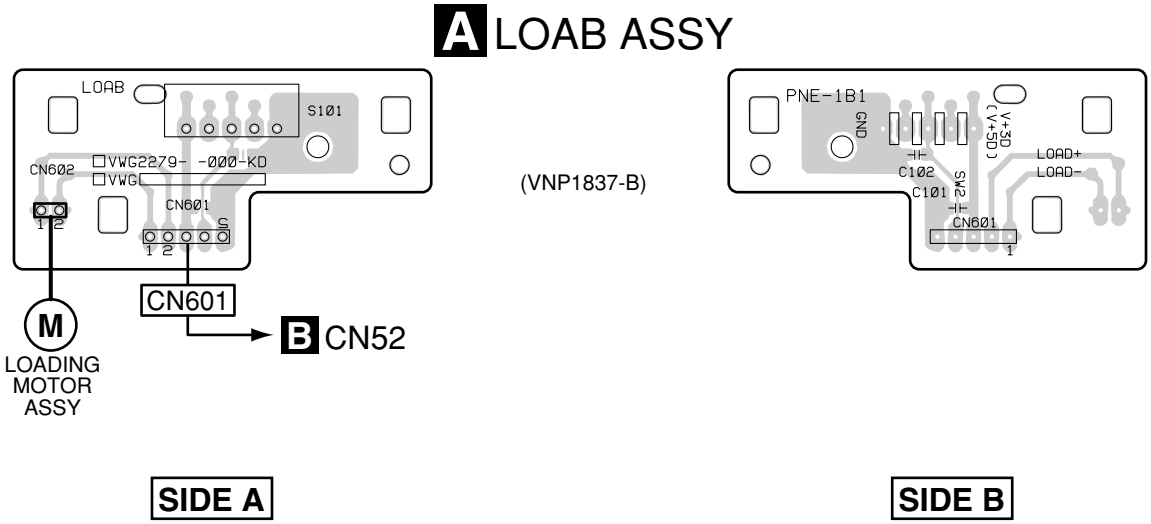
1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
B C E	B C E B C E	Transistor
B C E	B C E B C E	Transistor with resistor
D G S	D G S D G S	Field effect transistor
		Resistor array
		3-terminal regulator

3. The parts mounted on this PCB include all necessary parts for several destinations.
   For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.

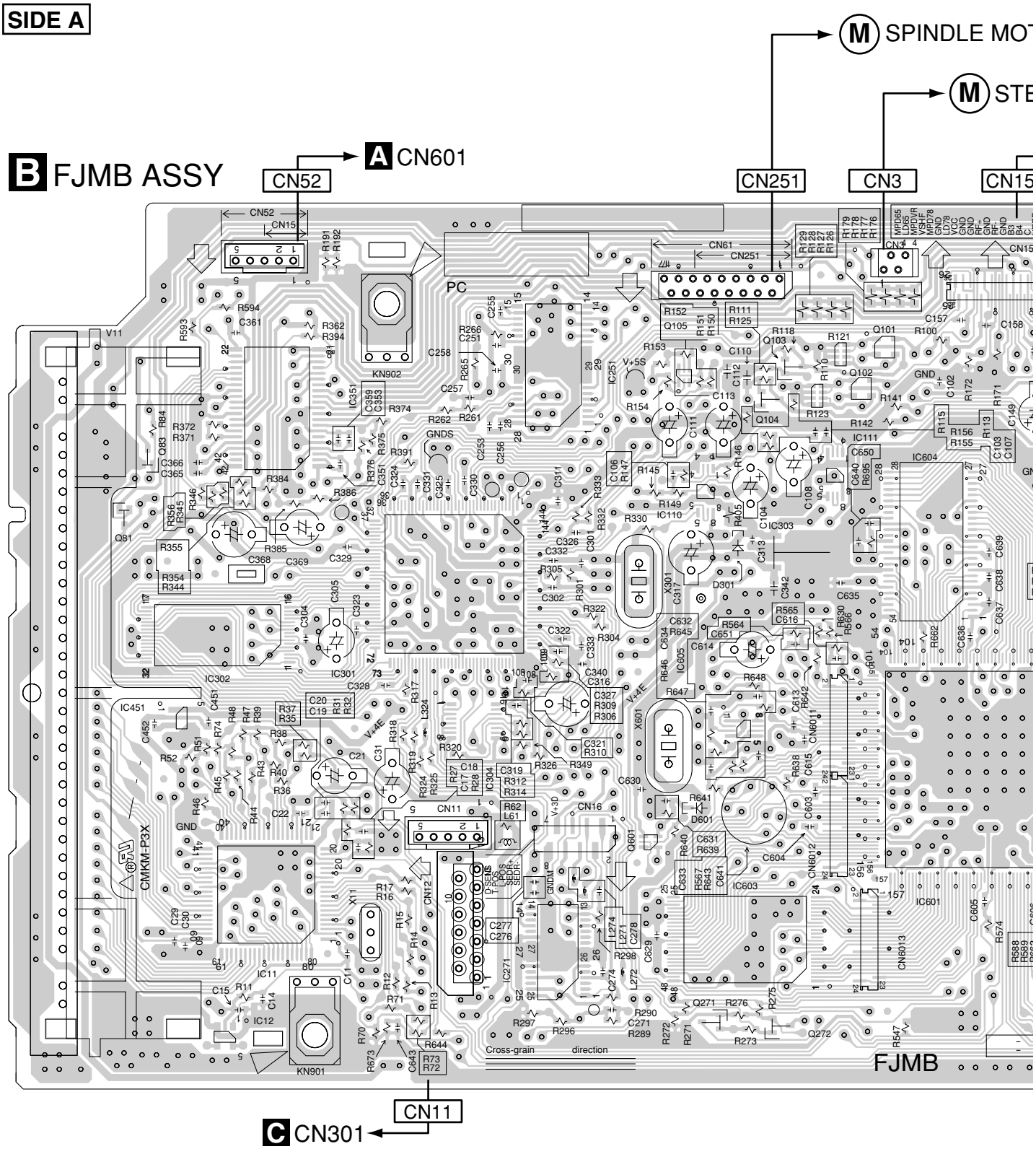


4.1 LOAB ASSY



4.2 FJMB ASSY

SIDE A



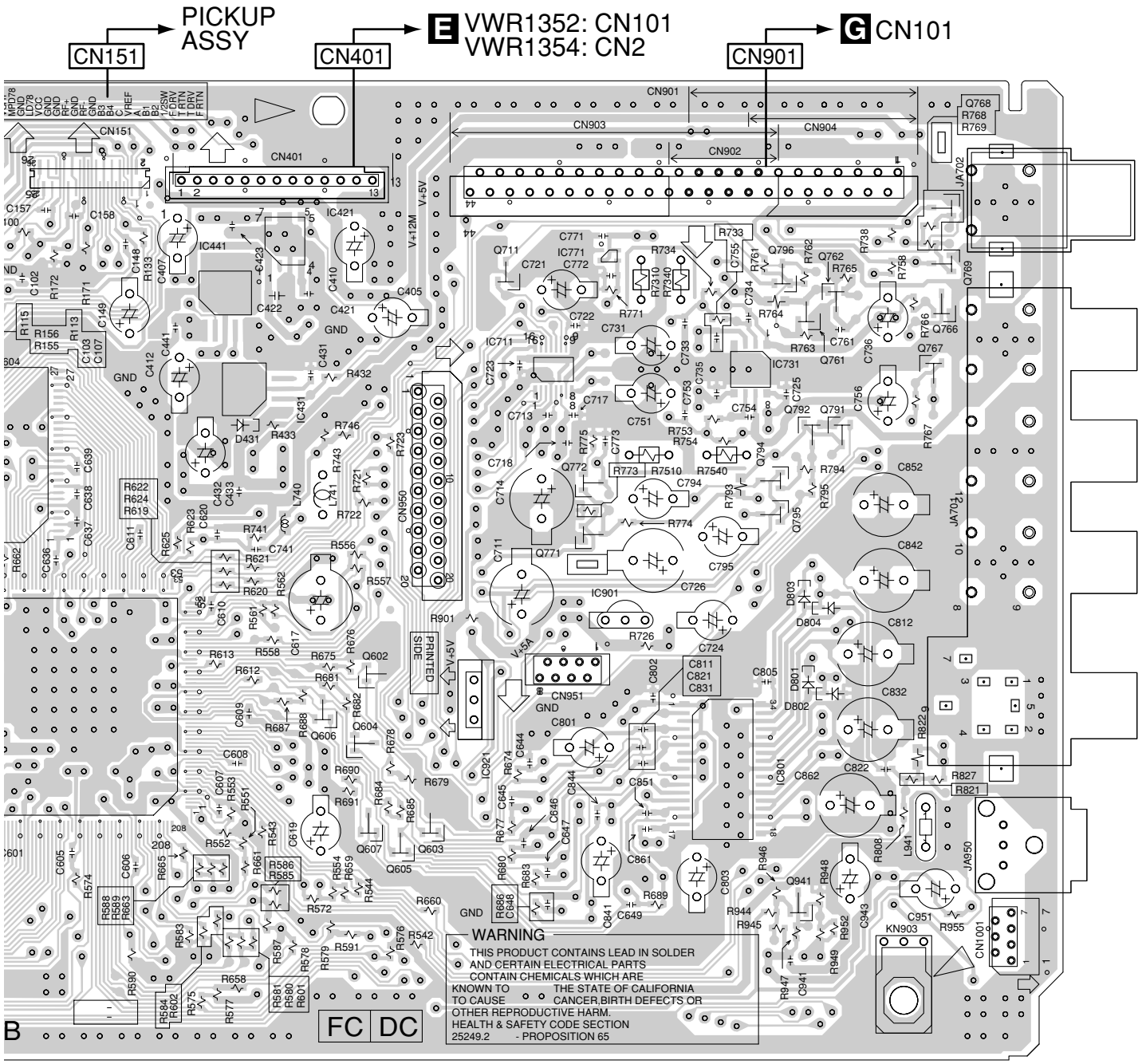
(VNP1867-C)

Q81 Q83 IC351 IC251 Q105 Q103 Q101
IC451 IC302 IC11 IC301 IC304 IC110 Q104 Q102 IC604
IC12 IC271 Q601 IC605 IC303 IC111 IC601
Q271 IC603 Q272

NDLE MOTOR

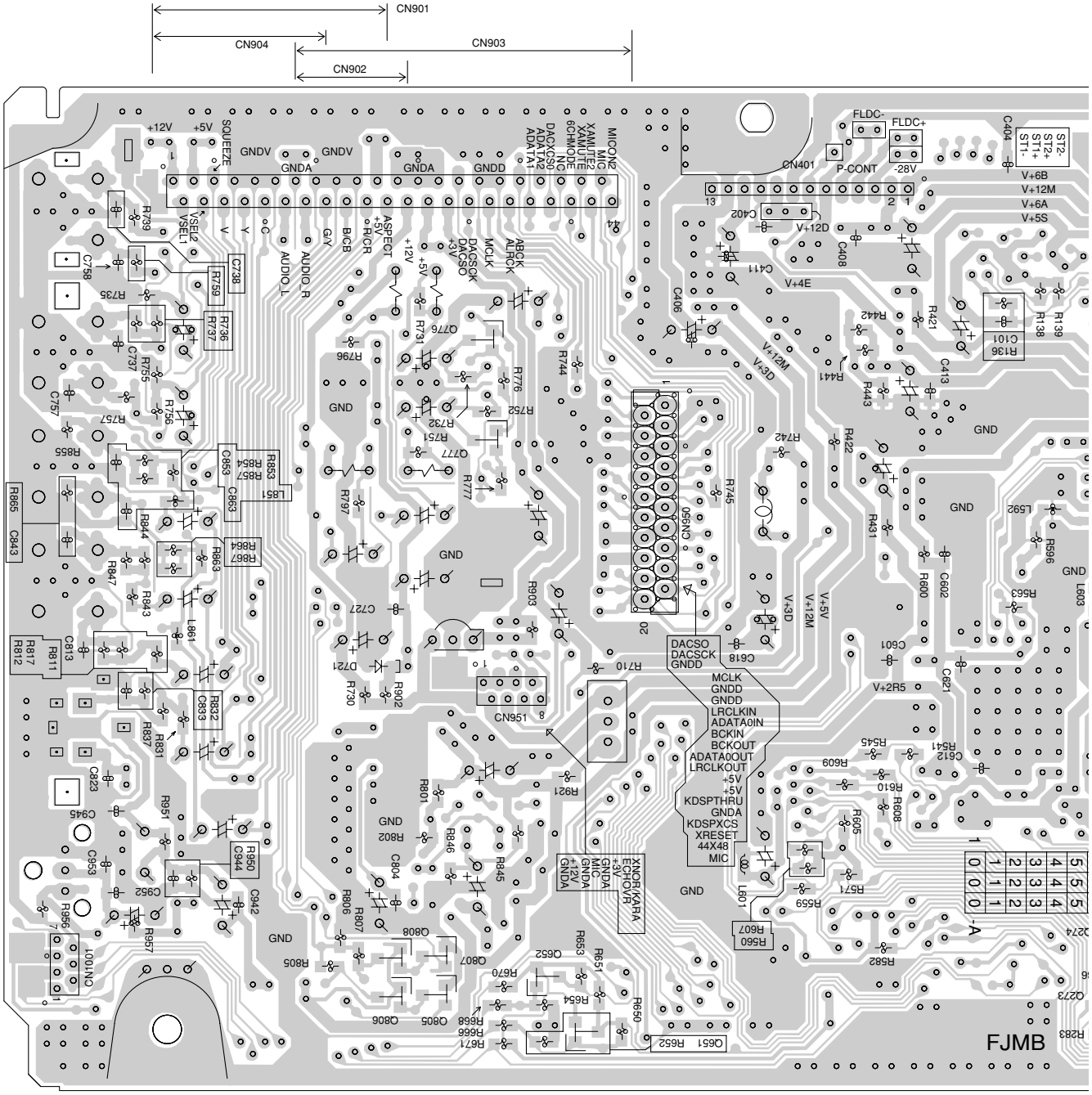
SIDE A

→ (M) STEPPING MOTOR



IC441 IC421 Q711 IC771 Q796 Q762 Q768
604 IC431 Q602 IC711 Q772 IC731 Q761 Q769
C601 Q606 Q604 IC921 Q771 IC901 Q794 Q792 Q791 Q766
Q607 Q603 Q795 Q767
Q605 IC801
Q941

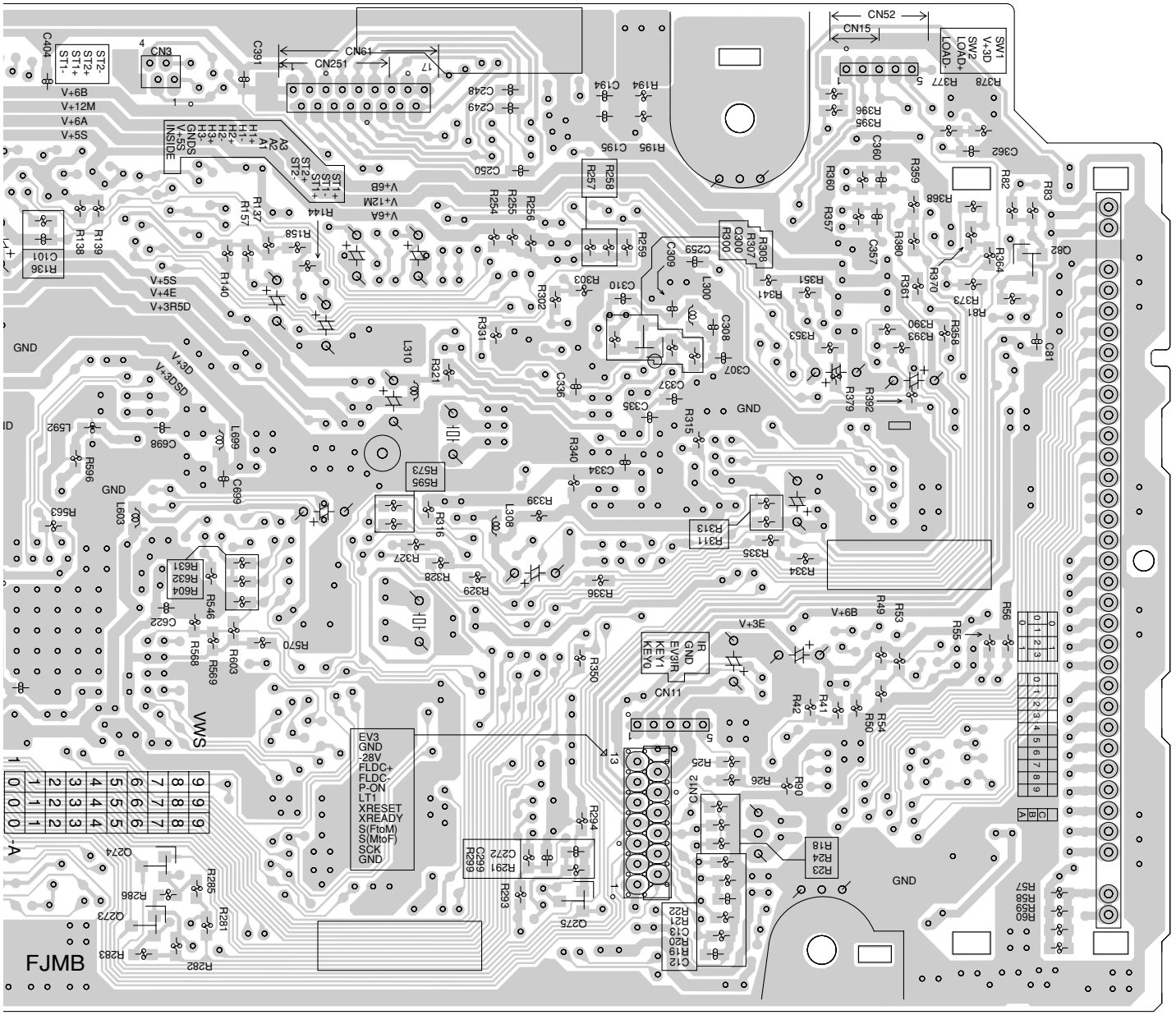
SIDE B



Q776
Q777
Q808 Q807 Q652
Q806 Q805 Q651
Q27
Q273

SIDE B

B FJMB ASSY

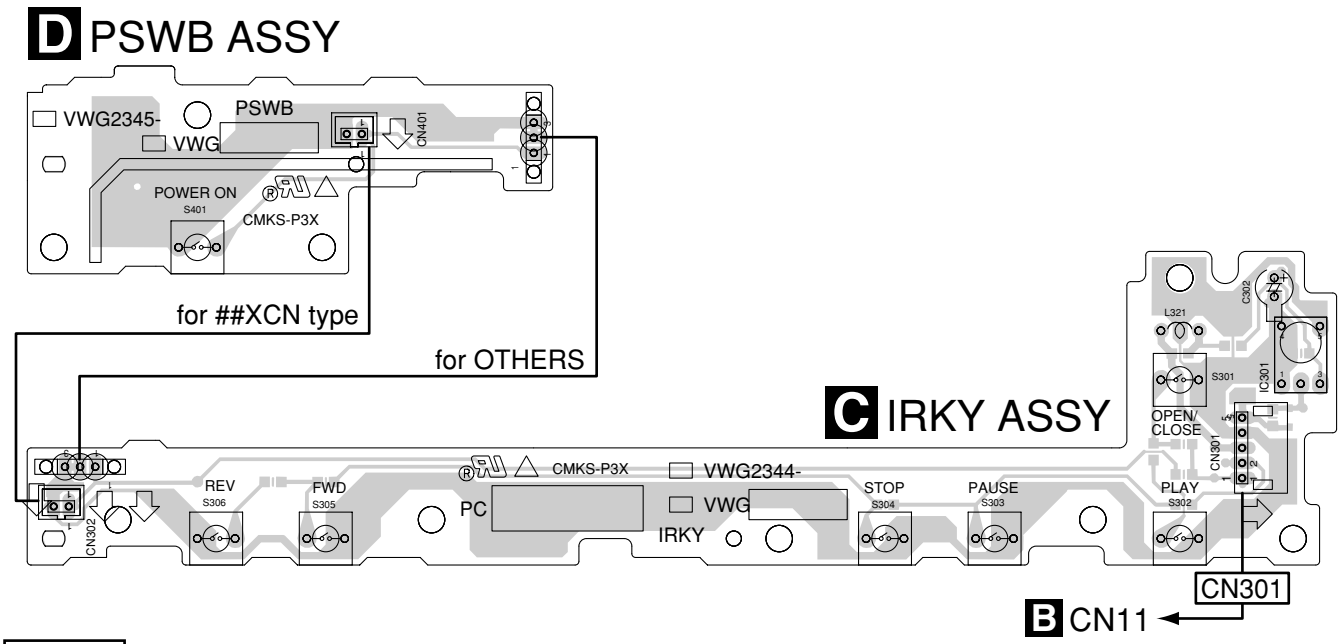


(VNP1867-C)

Q300 Q82

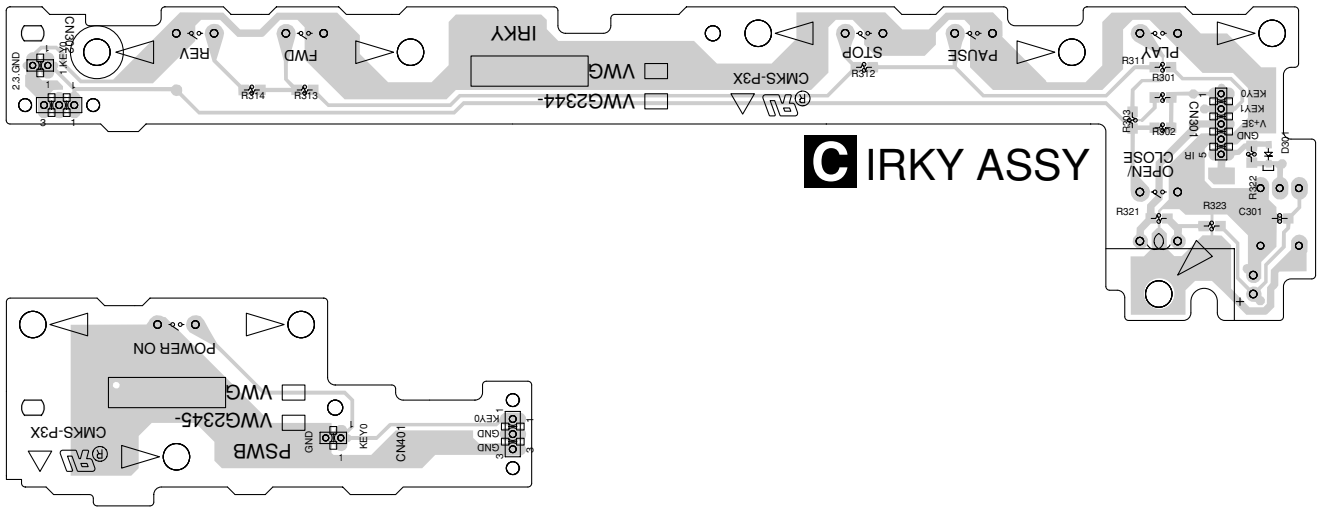
Q274
Q273 Q275

4.3 IRKY and PSWB ASSYS



SIDE A (VNP1868-B)

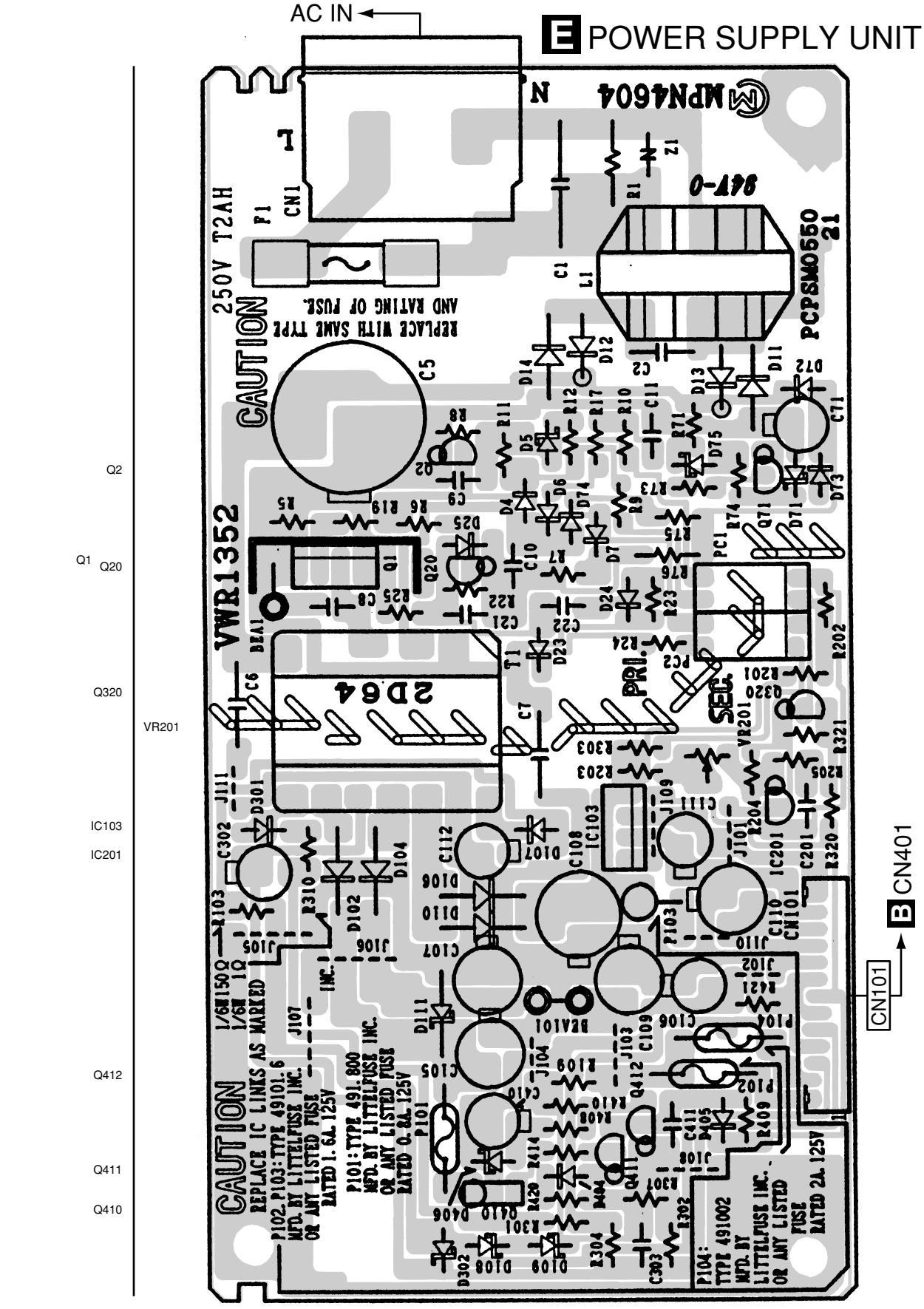
SIDE B (VNP1868-B)



4.4 POWER SUPPLY UNIT (VWR1352)

SIDE A

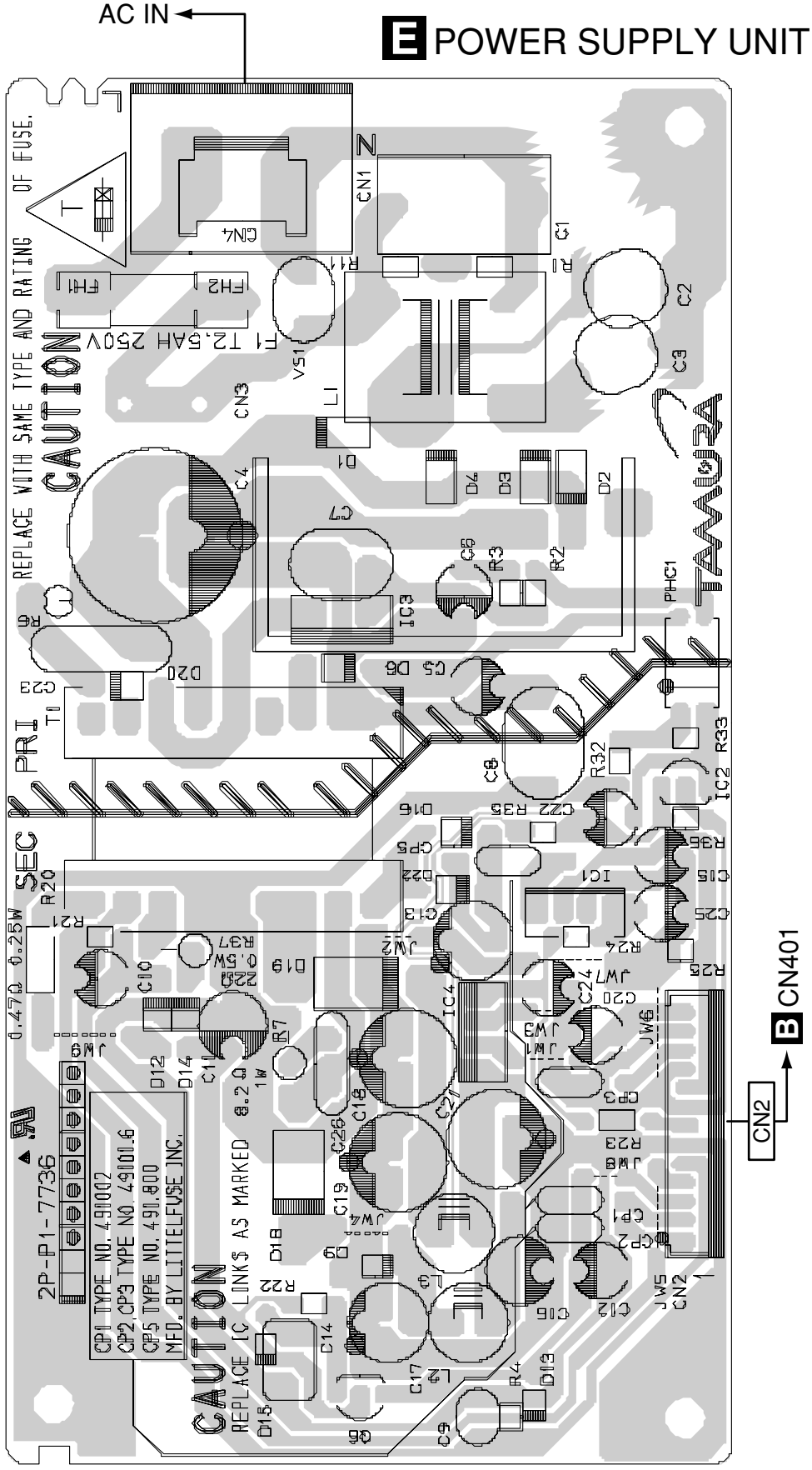
SIDE A



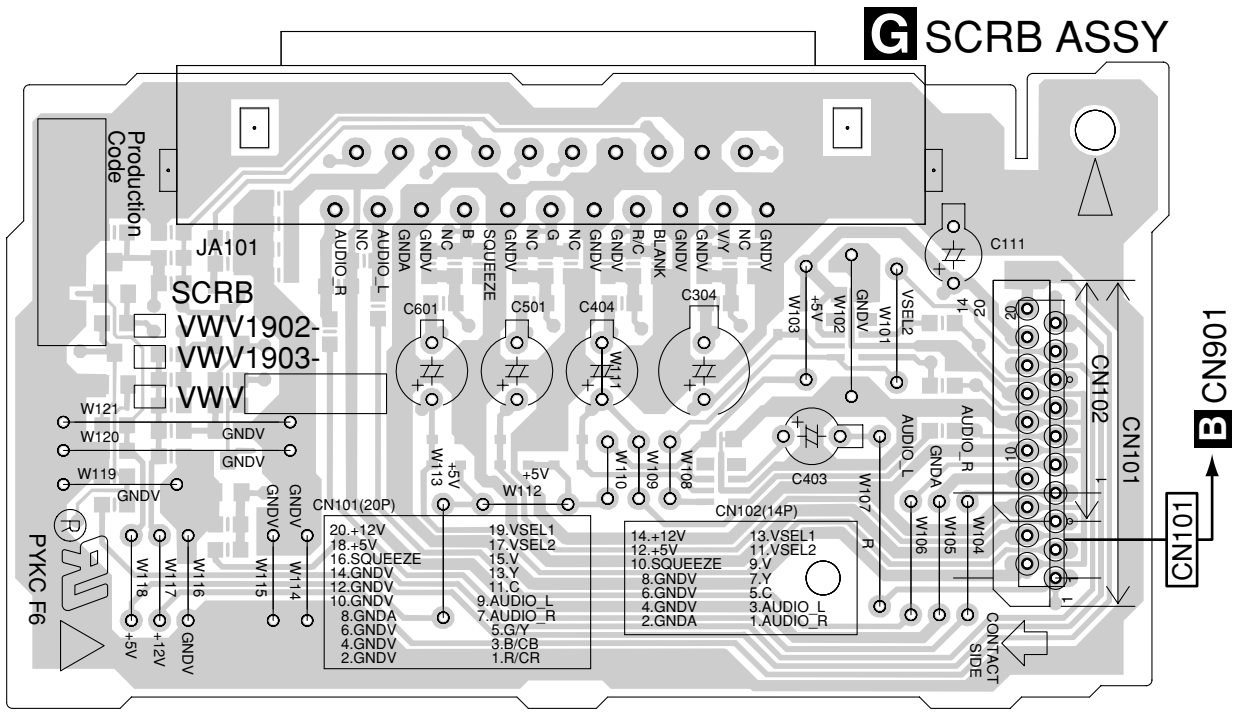
4.5 POWER SUPPLY UNIT (VWR1354)

SIDE A

SIDE A

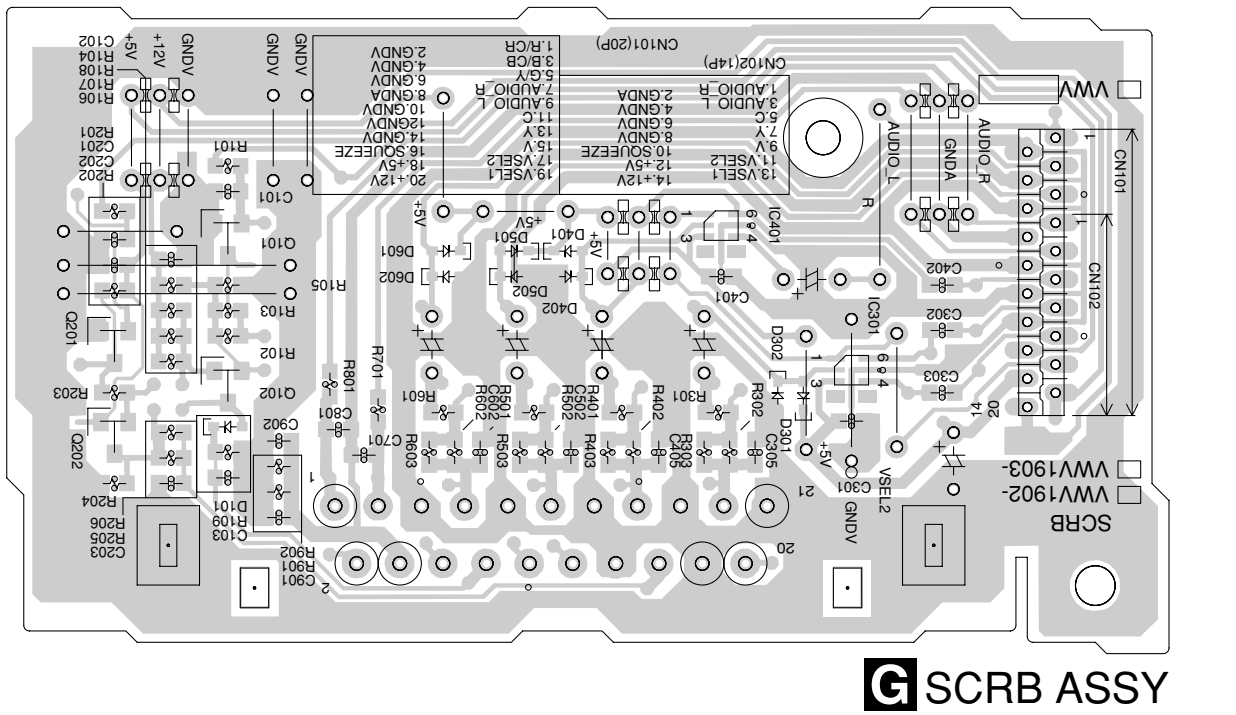


4.6 SCRB ASSY



SIDE A (VNP1868-B)

SIDE B (VNP1868-B)



5. PCB PARTS LIST

NOTES: ●*Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
●*The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
●*When ordering resistors, first convert resistance values into code form as shown in the following examples.*
Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).
560 Ω → 56 × 10¹ → 561 ..... RD1/4PU 5 6 1 J
47k Ω → 47 × 10³ → 473 ..... RD1/4PU 4 7 3 J
0.5 Ω → R50 ..... RN2H R 5 0 K
1 Ω → 1R0 ..... RS1P 1 R 0 K
Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).
5.62k Ω → 562 × 10¹ → 5621 ..... RN1/4PC 5 6 2 1 F

■ LIST OF ASSEMBLIES

Mark	No.	Description	Part No.
NSP	1	LOADING MECHANISM ASSY	VWT1197
NSP	2	LOAB ASSY	VWG2279
	1	FJMB ASSY	VWS1518
NSP	1	KEYB ASSY	VWM2122
NSP	2	IRKY ASSY	VWG2344
NSP	2	PSWB ASSY	VWG2345
⚠	1	POWER SUPPLY UNIT	VWR1354 (or VWR1352)
	1	SCRB ASSY	VWV1903

■ PCB PARTS LIST

A LOAB ASSY

SWITCHES AND RELAYS

Mark	No.	Description	Part No.
	S101	REAF SWITCH	VSK1011

OTHERS

Mark	No.	Description	Part No.
	CN602	CONNCTOR	S2B–PH–K
	CN601	CONNCTOR	S5B–PH–K
		PRINTED CIRCUIT BOARD	VNP1837

B FJMB ASSY

SEMICONDUCTORS

Mark	No.	Part No.
	IC110	BA10358FV
⚠	IC303	BA18BC0FP
	IC731	BA4560F
	IC251	BA6664FM
	IC604	K4S641632F–TC75
	IC302	K6T1008V2E–TB70
	IC301	L6315ATXXTY
	IC351	M56788AFP
⚠	IC451	MM1385EN
⚠	IC421	MM1565AF
	IC801	MM1567AJ
⚠	IC901	NJM78L05A
	IC711	PCM1742KE
	IC11	PE5314B
⚠	IC431	PQ025EZ01ZP
⚠	IC441	PQ070XZ02ZP
	IC12	PST3228
	IC601	STI5519AVB–B0C
	IC605	TC7WU04FU
	IC603	VYW1978
	Q300, Q602–Q607, Q762	2SA1037K
	Q81, Q83	2SA1602A
	Q103, Q104, Q82, Q941	2SC2412K
	Q766–Q769	2SD2114K
	Q652	DTC114TK
	Q711, Q761, Q805, Q807	DTC114YK
	Q101, Q102	HN1A01F
	Q806, Q808	PDTA124EK
	Q601	RN4982
	D601	RB501V–40
	D721	UDZS6.2B

Mark	No.	Description	Part No.
COILS AND FILTERS			
	L741		LAU3R3J
	L699		LCYA2R2J2520
	L300		LCYA2R7J2520
	L324	CHIP BEADS	VTL1083
CAPACITORS			
	C301, C302		CCSRCH100D50
	C310		CCSRCH151J50
	C307		CCSRCH180J50
	C360		CCSRCH330J50
	C391, C737, C757		CCSRCH331J50
	C351		CCSRCH470J50
	C309		CCSRCH560J50
	C308		CCSRCH7R0D50
	C633, C634		CCSRCH8R0D50
	C113		CEAT100M50
	C104, C21, C316, C317, C368		CEAT101M10
	C405, C412, C432, C614, C711		CEAT101M10
	C721, C726, C731, C736, C751		CEAT101M10
	C756, C801, C803		CEAT101M10
	C617, C714		CEAT102M6R3
	C943		CEAT1R0M50
	C111		CEAT220M25
	C724		CEAT470M16
	C812, C832		CEAT471M6R3
	C342, C422		CKSQYB225K10
	C699		CKSQYF225Z16
	C14, C340, C641		CKSRYB102K50
	C259, C311		CKSRYB103K50
	C248–C251, C255		CKSRYB104K16
	C257, C258		CKSRYB223K50
	C733, C753		CKSRYB272K50
	C357		CKSRYB472K50
	C106, C11, C148, C157, C158		CKSRYF104Z25
	C22, C253, C256, C304		CKSRYF104Z25
	C321–C333, C365, C366, C451		CKSRYF104Z25
	C602–C609, C612, C618		CKSRYF104Z25
	C621, C622, C632, C637–C640		CKSRYF104Z25
	C713, C717, C722, C725, C735		CKSRYF104Z25
	C755, C802, C804, C805, C811		CKSRYF104Z25
	C821, C822, C831, C844, C851		CKSRYF104Z25
	C861, C952		CKSRYF104Z25
	C30		CKSRYF104Z50
	C411, C423, C431, C601		CKSRYF105Z10
	C610, C611, C613, C615, C629		CKSRYF105Z10
	C635, C636, C741		CKSRYF105Z10
	C734, C754 (330P/50V)		VCH1226
RESISTORS			
	R121		RAB4C220J
	R123		RAB4C390J
	R731, R751		RN1/16SE2201D
	R734, R754		RN1/16SE4301D
	R341		RS1/10S101J
	R764		RS1/10S182J
	R126–R129, R176–R179		RS1/10S220J
	R254–R259		RS1/10S3R3J
	R822, R832		RS1/10S75R0F
	R326–R330, R443		RS1/16S1001F
	R147, R265, R266, R304, R322		RS1/16S1002F
	R377, R378, R392, R393		RS1/16S1002F
	R344, R351, R353, R354		RS1/16S1003D
	R359, R360, R368, R372		RS1/16S1003D
	R374, R375, R384, R385		RS1/16S1003D
	R335, R336		RS1/16S1003F
	R302		RS1/16S1202F
	R358, R394		RS1/16S1503F
	R146, R441		RS1/16S1801F
	R612, R613		RS1/16S1802F
	R442		RS1/16S1803F
	R675, R678, R681, R684, R687		RS1/16S2700F
	R690		RS1/16S2700F
	R345, R355, R370, R371		RS1/16S3902F
	R346, R356, R357, R362, R364		RS1/16S6802F
	R373		RS1/16S6802F
	R812		RS1/16S75R0F
	R390		RS1/16S8202F
	OtherResistors		RS1/16S###J
OTHERS			
	CN901	20P CONNECTOR	52045–2045
	CN401	CONNECTOR	B13B–PH–K
	CN11, CN52	CONNECTOR POST	B5B–PH–K
	JA950		JFJ1001
		OPT. LINK OUT 8MB/S	
	V11	FL TUBE	VAW1070
		FLEXIBLE CABLE	VDA1681
		PCB BINDER	VEF1040
	JA701	JACK	VKB1180
	CN3	4P CONNECTOR	VKN1180
	CN251	12P CONNECTOR	VKN1188
	CN1001	7P CONNECTOR	VKN1211
	CN151	26P CONNECTOR	VKN1790
		FL HOLDER	VNK4980
	X11 (5MHz)		VSS1142
	X301 (20MHz)		VSS1167
	X601 (27MHz)		VSS1168

CIRKY ASSY

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	IC301		SPS–444L–H
COILS AND FILTERS			
	L301, L311		VTL1084
SWITCHES AND RELAYS			
	S301–S306		ASG7013
CAPACITORS			
	C301		CKSRYF104Z25
RESISTORS			
	All Resistors		RS1/16S###J
OTHERS			
		3P CABLE HOLDER	51048–0300
	J301	3P JUMPER WIRE	D20PDD0315E
	CN301	CONNECTOR	S5B–PH–K

Mark	No.	Description	Part No.

D PSWB ASSY

SWITCHES AND RELAYS

	S401	ASG7013

OTHERS

	3P CABLE HOLDER	51048–0300

E POWER SUPPLY UNIT (VWR1352)

OTHERS

⚠	P103 PROTECTOR (1.6A)	AEK7012
⚠	P101 PROTECTOR (800mA)	AEK7063
⚠	P102 PROTECTOR (1.6A)	AEK7066
⚠	P104 PROTECTOR (2A)	AEK7067
⚠	F1 FUSE (2A)	REK1101

E POWER SUPPLY UNIT (VWR1354)

OTHERS

⚠	CP5 PROTECTOR (800mA)	AEK7063
⚠	CP2, CP3 PROTECTOR (1.6A)	AEK7066
⚠	CP1 PROTECTOR (2A)	AEK7067
⚠	F1 FUSE (2.5A)	REK1102

G SCRB ASSY

SEMICONDUCTORS

	IC401	MM1505XN
	IC301	MM1507XN
	Q102, Q202	2SA1037K
	Q101, Q201	2SC2412K
	D101, D301, D302, D401, D402	1SS355

CAPACITORS

	C701, C801	CCSRCH331J50
	C403	CEAT100M50
	C404, C501, C601	CEAT101M10
	C304	CEAT471M6R3
	C102, C103, C202, C301–C303	CKSRYF104Z25
	C401, C402	CKSRYF104Z25

RESISTORS

	R301, R401, R501, R601	RS1/10S0R0J
	R205	RS1/10S68R0F
	R302, R402, R502, R602	RS1/10S75R0F
	OtherResistors	RS1/16S###J

OTHERS

	CN101 20P CONNECTOR	52045–2045
	JA101 CONNECTOR	VKB1157

6. ADJUSTMENT

6.1 ADJUSTMENT ITEMS AND LOCATION

■ Adjustment Items

[Mechanism Part]

❶ Tangential and Radial Height Coarse Adjustment

❷ DVD Jitter Adjustment

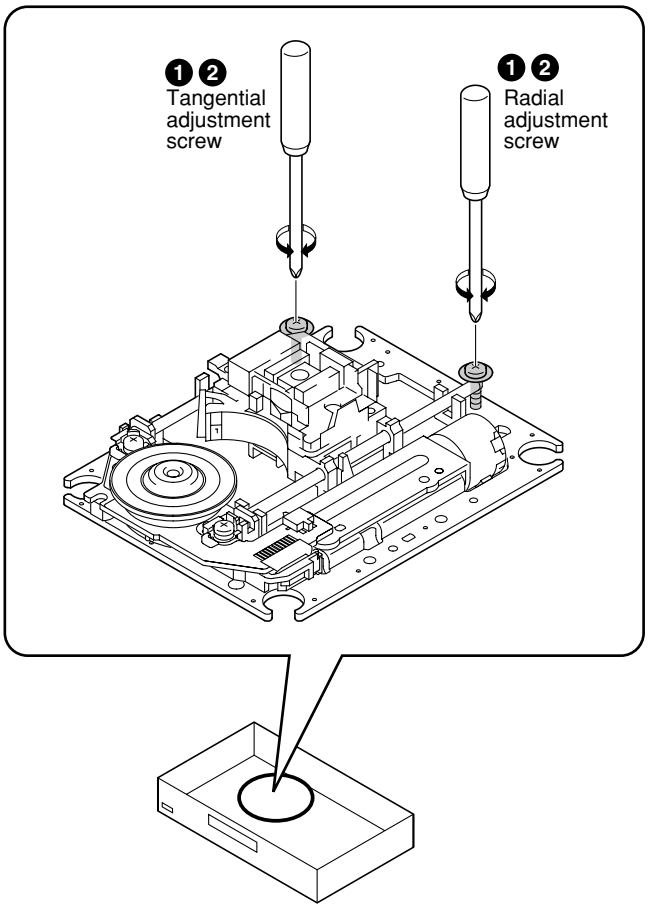
❸ Initialize the Focus Sweep Setting

[Electrical Part]

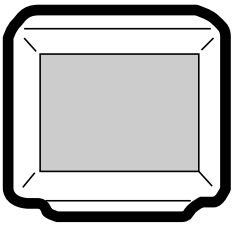
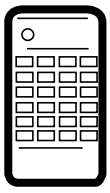
Electrical adjustments are not required.

■ Adjustment Points (Mechanism Part)

Cautions: After adjustment, adjustment screw locks with the Screw tight.



6.2 JIGS AND MEASURING INSTRUMENTS

⊕ Screwdriver (large)	⊕ Screwdriver (medium)	 TV monitor	 Test mode remote control unit (GGF1067)
⊕ Precise screwdriver	DVD test disc (GGV1025)	Screw tight (GYL1001)	

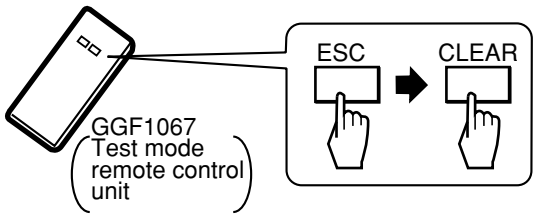
6.3 NECESSARY ADJUSTMENT POINTS

When	Adjustment Points	
■ Exchange Parts of Mechanism Assy		
Exchange the Pickup	Mechanical point	❶, ❷, ❸ ＊ After adjustment, screw locks with the Screw tight.
	Electric point	———
Exchange the Traverse Mechanism	Mechanical point	❸
	Electric point	———
Exchange the Spindle Motor	Mechanical point	❷, ❸ ＊ After adjustment, screw locks with the Screw tight.
	Electric point	———
■ Exchange PCB Assy		
Exchange PC Board LOAB, FJMB ASSY	Mechanical point	———
	Electric point	———

＊

Purpose: To set the sweep which was correct with the individual Traverse mechanism.

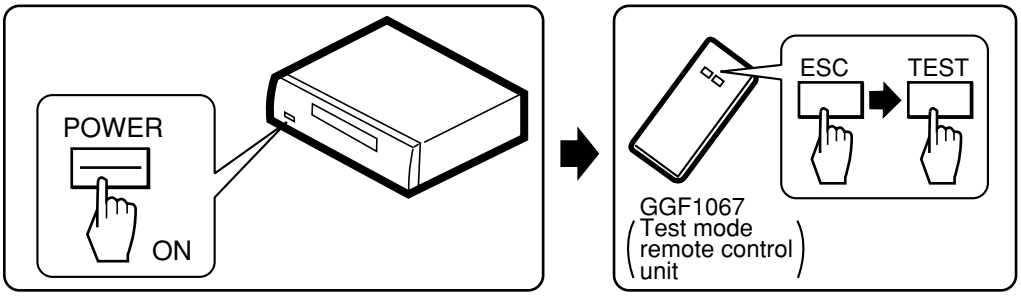
Be sure to perform the following step finally when replaced Pickup, Traverse Mechanism and Spindle Motor.



(It is necessary when performed adjustment procedure ❷.)

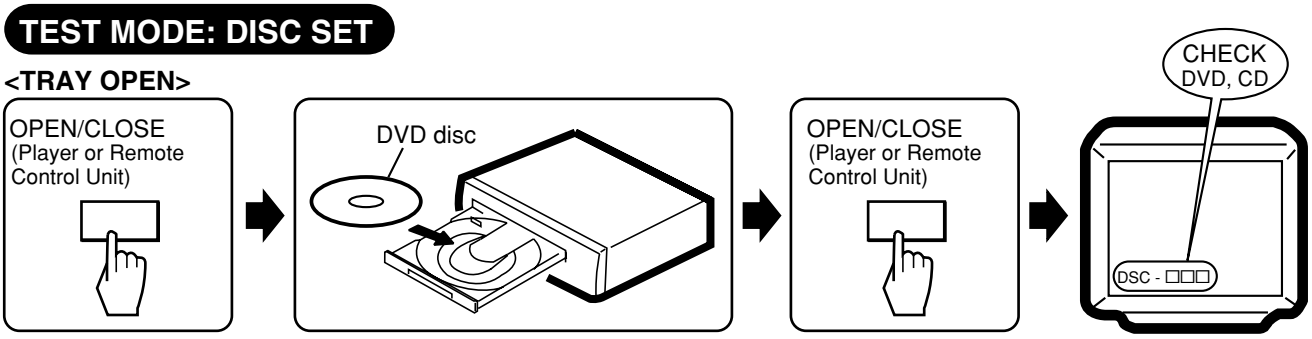
6.4 TEST MODE

TEST MODE: ON



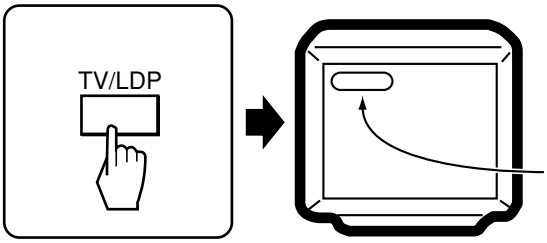
TEST MODE: DISC SET

<TRAY OPEN>



TEST MODE: PLAY

<PLAY>

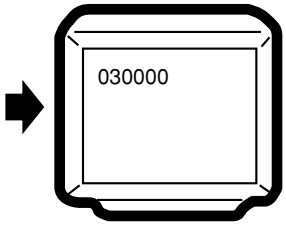


CAUTION:
Perform only trace, video and audio output are nothing.

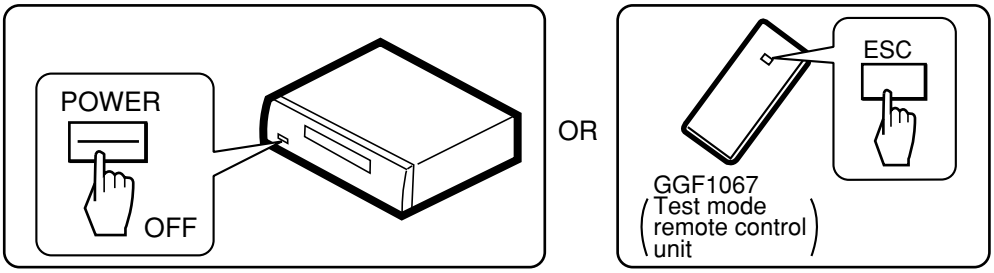
< When playback with the target address of disc (DVD)>

For example, when playback with # 30000

During PLAY [+10] ➡ [3] ➡ [0] ➡ [0] ➡ [0] ➡ [0] ➡ [CHP/TIM] Press keys in order



TEST MODE: OFF

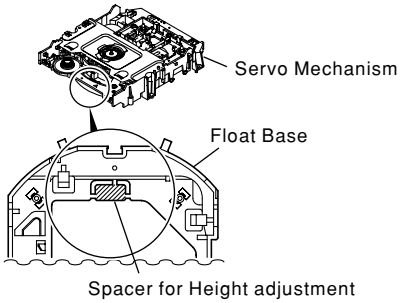


6.5 MECHANISM ADJUSTMENT

1 Tangential and Radial Height Coarse Adjustment

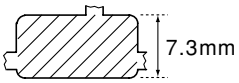
START

- Remove the servo mechanism.
- Remove a Spacer for height adjustment attached to the back side (shaded area) of the Servo Mechanism (Float Base) with nippers.

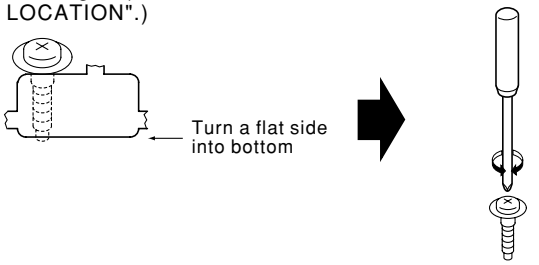


Note:
Turn the Short switch to Short side when removing the Pickup Flexible Cable. (Refer to "7.1.6 DISASSEBLY".)

Cautions:
Because there is not a Spacer for height adjustment in adjustment after the second time, will keep it at need. (This parts is Traverse mechanism exclusive use of a model for 2001 years)



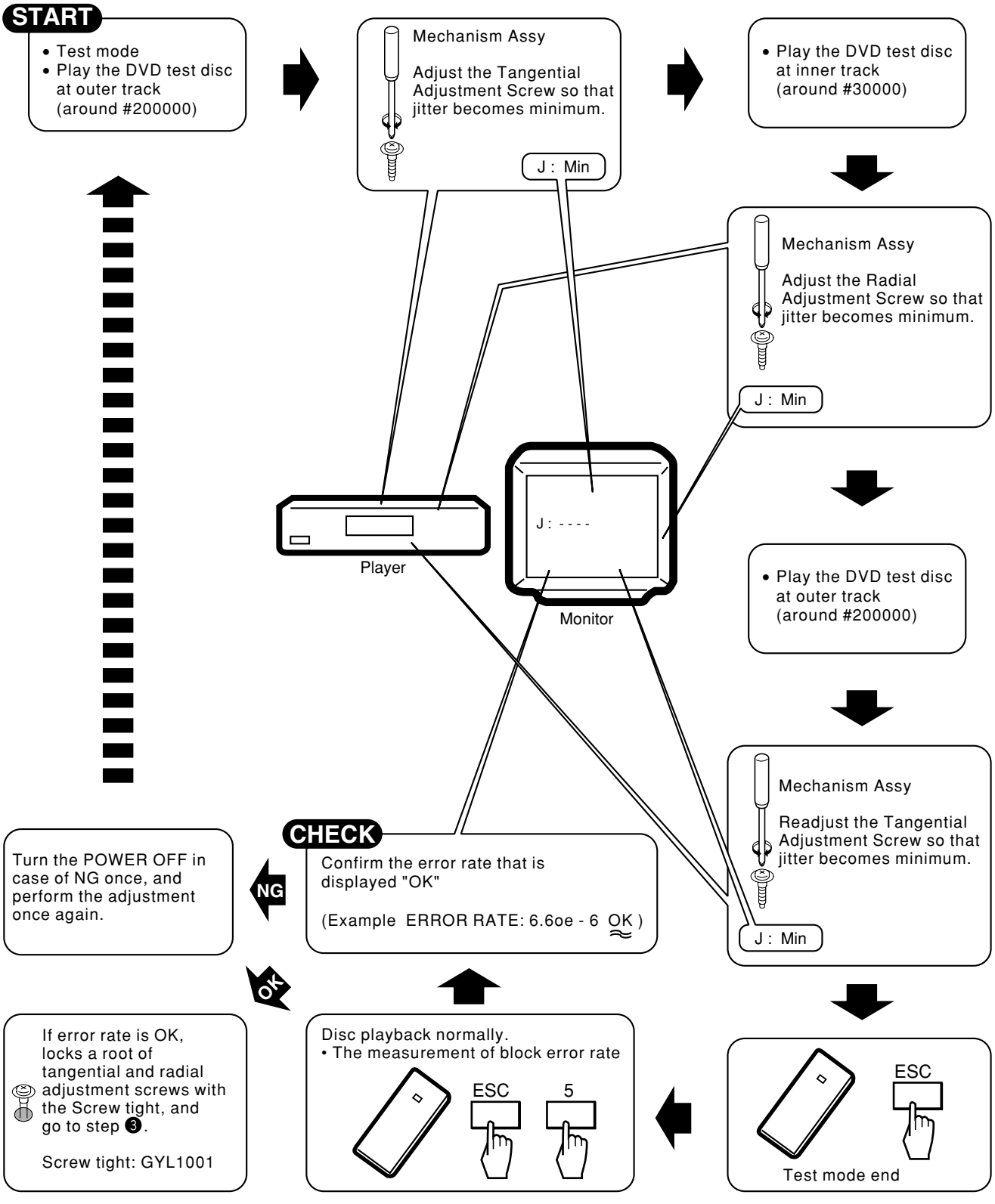
Put a spacer between a Tangential (or Radial) adjustment screw and Mechanism Base and turn each screw to adjust the height. (Refer to "6.1 ADJUSTMENT ITEMS AND LOCATION".)



❷ DVD Jitter Adjustment

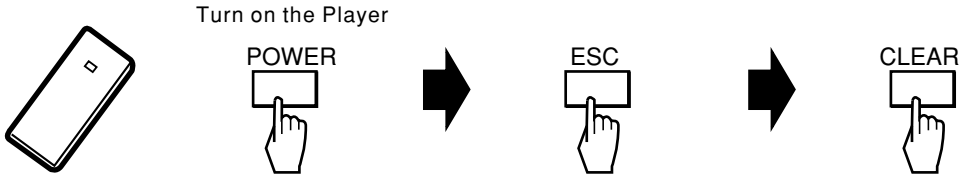
- Playback method of inner and outer address for the purpose is refererd to "6.4 TEST MODE".
- Jitter indication of the monitor is refererd to "7.1.1 TEST MODE (Display Specification of the Test Mode)".

Use disc: GGV1025


START
• Test mode
• Play the DVD test disc at outer track (around #200000)
Mechanism Assy
Adjust the Tangential Adjustment Screw so that jitter becomes minimum.
J : Min
• Play the DVD test disc at inner track (around #30000)
Mechanism Assy
Adjust the Radial Adjustment Screw so that jitter becomes minimum.
J : Min
J : - - - -
Player
Monitor
• Play the DVD test disc at outer track (around #200000)
Mechanism Assy
Readjust the Tangential Adjustment Screw so that jitter becomes minimum.
J : Min
CHECK
Confirm the error rate that is displayed "OK"
(Example ERROR RATE: 6.6oe - 6 OK)
NG
Turn the POWER OFF in case of NG once, and perform the adjustment once again.
OK
If error rate is OK, locks a root of tangential and radial adjustment screws with the Screw tight, and go to step ❸.
Screw tight: GYL1001
Disc playback normally.
• The measurement of block error rate
ESC
5
ESC
Test mode end

❸ Initialize the Focus Sweep Setting

Purpose: To set the sweep which was correct with the individual Traverse mechanism.



Note: Be sure to perform this step when replaced the Pickup or Traverse mechanism.

7. GENERAL INFOMATION

7.1 DIAGNOSIS

7.1.1 TEST MODE

■ Test Mode Functional Specification

① Test mode entry

In the power ON state, press the [ESC] (A8-5F) key and [TEST / RANDOM] (A8-5E) key in order of the LD remote control unit.
- Light the all FL and LEDs, and goes out the FL and LEDs when pressing the keys of something.
- OSD displays test mode. Refer to the "Display Specification of the Test Mode".

② Release the Test mode
- Turn off the power.
- Press the [ESC] (A8-5F) key of the remote control unit and reset it.

③ Tray open / close
- Press the [REPEAT A-B] (A8 - 48) key of the remote control unit.
- Press the [OPEN / CLOSE] key of the main unit from the stop state.

④ Playback stop
- Press the [REPEAT] (A8 - 44) key of the remote control unit from the playback state.

⑤ LD ON

DVD : Press the [TEST] (A8-5E) and [1] (A8-01) keys in order, and turn on the laser diode (650n).
CD : Press the [TEST] (A8-5E) and [4] (A8-04) keys in order, and turn on the laser diode (780n).

⑥ Focus on / sweep
1. Lock the focus by pressing the [TEST] (A8-5E) and [2] (A8-02) keys in order.
2. Repeat focus sweep by pressing the [TEST] (A8-5E) and [3] (A8-03) keys in order.

⑦ Spindle FG servo

CAV : Press the [TEST] (A8-5E) and [5] (A8-05) keys in order,then rise up the spindle and it becomes FG servo on.
CLV : Press the [TEST] (A8-5E) and [9] (A8-09) keys in order,then rise up the spindle and it becomes FG servo on.

⑧ Tracking open / close
1. Open tracking by pressing the [STEP FWD] (A8-54) key of the remote control unit in the play state.
2. Close tracking by pressing the [STEP REV] (A8-50) key of the remote control unit in the play state.

⑨ Slider servo on/off
1. Turn on the slider servo by pressing the [TEST] (A8-5E) and [CX] (A8-0E) keys in order.
2. Turn off the slider servo by pressing the [TEST] (A8-5E) and [TV/LDP] (A8-0F) keys in order.

⑩ Slider in / out

Slider in : In the tracking off state, press the [SCAN REV] (A8-11) key of the remote control unit.
Slider out : In the tracking off state, press the [SCAN FWD] (A8-10) key of the remote control unit.

⑪ Play (perform only the ID search and trace to the specified location)

Press the [TV/LDP] (A8-0F) key of the remote control unit from the stop state.
Perform only trace, video and audio output are nothing.

⑫ Screen display ON/OFF
1. Turn off the display by pressing the [AUDIO] (A8-1E) key of the remote control unit.
2. Turn on the display by pressing the [DISPLAY] (A8-43) key of the remote control unit.

⑬ Search

1. Search address input entry

• It becomes the address input mode when pressing the [+10] (A8-1F) key. (Most significant digit of an address displays ">".)
• In this time, display the last address as the initial state.

2. Search address input

• Press the [0] to [9] (A8-00 to 09) keys of the remote control unit. In the DVD, set an address with hexadecimal.
• In the address input mode, turn to the hexadecimal input by pressing the [PROGRAM] (A8-4C) key (display a "∗" mark), and [1] to [6] keys are each input as A to F.
• In this time, do not accept the [7],[8],[9] and [0] keys. Hexadecimal input and decimal input can switch with toggle.
• In case of CD, perform only the absolute time search.

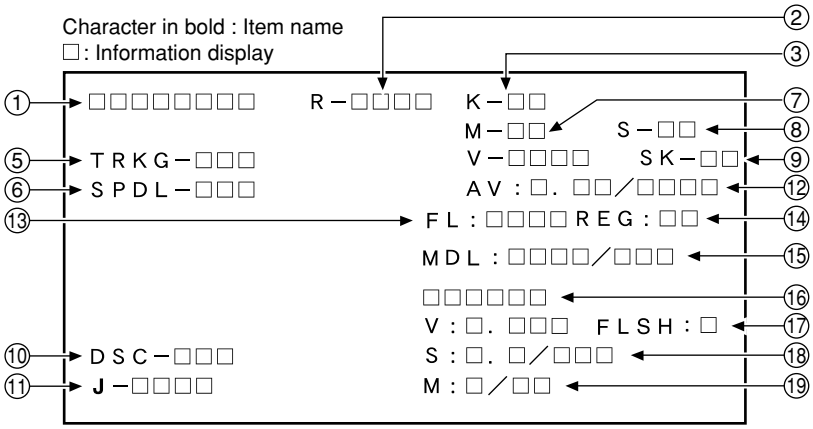
3. Search execution

• Press the [CHP/TM] (A8-13) key of the remote control unit.
• After the search, perform only trace and video and audio outputs are nothing.

4. Release the Search address input

• Clear the address by pressing the [CLEAR] (A8-45) key. Release the address input mode when pressing the [CLEAR] key once again.

Display Specification of the Test Mode



① **Address indication**
The address being traced is displayed in number.
(as for the DVD, indication of decimal number is possible.)
DVD : ID indication (hexadecimal number, 8 digits)
[＊＊＊＊＊＊＊＊]
CD : A-TIME (min. sec.) [0 0 0 0 ＊＊＊＊]

② **Code indication of remote control unit [R – ＊＊＊＊]**
In case of double code, display a 2nd code.

③ **Main unit keycode indication [K – ＊＊]**

⑤ **Tracking status [TRKG – ＊＊＊]**
Tracking on : [ON]
Tracking off : [OFF]

⑥ **Spindle status [SPDL – ＊＊＊]**
[OFF], [A/B] (ACC/BRK), [CAV], [CLV]

⑦ **Mechanism (loading) position value [M – ＊＊]**
Unknown : [01] or [41]
Open state : [04]
Close state : [08]
During opening : [12]
During closing : [22]

⑧ **Slider position [S – ＊＊＊＊]**
CD TOC area : [IN]
CD active area : [CD]

⑨ **Output video system [V – ＊＊＊＊]**
NTSC system : [NTSC]
PAL system : [PAL]
Automatic setting : [AUTO]

Scart terminal output [SK – ＊＊]
(Display only the WY model which can do the output setting of scart terminal.)
VIDEO : [00]
S-VIDEO : [01]
RGB : [02]

⑩ **Disc sensing [DSC – ＊＊＊]**
The type of discs loaded is displayed.
[DVD], [CD], [VCD], [ ]

⑪ **Jitter value [J – ＊＊＊＊]**

⑫ **Version of the AV-1 chip / version of firmware [AV: ＊＊ / ＊＊＊＊＊＊＊＊]**

⑬ **Version of the FL controller [FL: ＊＊＊＊]**

⑭ **Region setting of the player [REG: ＊]**
Setting value : [1] to [6]

⑮ **Destination setting of the FL controller [MDL: ＊＊＊＊ / ＊＊＊]**
Four characters in the front represent the type of model.
Three characters in the back represent the destination code.
J: /J, K: /KU, /KC, /KU/KC, R: /RAM/RL/RD, LB: /LB, WY: /WY

⑯ **Part number of the flash ROM [＊＊＊＊＊＊]**

⑰ **Version of the flash ROM [V: ＊. ＊＊＊]**
Flash ROM size [FLSH = ＊]

⑱ **Revision of the system controller [S: ＊ . ＊ / ＊＊＊]**

⑲ **Revision of the DVD mechanism controller [M: ＊ / ＊＊]**

Shortcut key Functional Specification

Only in the normal playback, the following setting can by pressing the required key after having pressed the "ESC" key of the remote control unit. How to release: Press the "ESC" key. (function with indication)

Command Contents	Conditions	Remote Control Key Name	Remote Control Code
Memory clear & region / revision indication		CLEAR (LD remote control unit)	A8-45
Average value measurement of DVD error rate		5 (LD remote control unit)	A8-05
CD error rate measurement		5 (LD remote control unit)	A8-05
Aspect: Pan scan		2	AF-A2
Aspect: Letter box		3	AF-A3
Aspect: Wide		4	AF-A4
Digital: PCM		5	AF-A5
Digital: AC-3/PCM		6	AF-A6
Virtual Dolby: VDD=OFF	Only correspondence model	7	AF-A7
Virtual Dolby: VDD=ON	Only correspondence model	8	AF-A8
Digital output ON		REPEAT A	AF-E8
Digital output OFF		REPEAT B	AF-E4
DTS Digital Out ON		STEP FWD	AF-B7
DTS Digital Out OFF		STEP REV	AF-B8
Scart terminal output: VIDEO	WY, Model to include scart	AUDIO	AF-BE
Scart terminal output: S-VIDEO	WY, Model to include scart	SUBTITLE	AF-36
Scart terminal output: RGB	WY, Model to include scart	ANGLE	AF-B5
Audio 5.1CH ON	Only correspondence model	KD_ENTER	AF-EF
FL indication of EDC / ID error		CX (LD remote control unit)	A8-0E
ZOOM ON	Only correspondence model	ZOOM	AF-37
ZOOM OFF	Only correspondence model	< X3 (LD remote control unit)	A8-59
Service mode indication (error rate indication, etc.)		CHP/TIM (LD remote control unit)	A8-13
Model information indication		CHAP (LD remote control unit)	A8-40
Background color change		+10 (LD remote control unit)	A8-1F
Audio last stage mute ON		9	AF-A9
Audio last stage mute OFF		0	AF-A0
Title search Input mode IN Title No. input Search execution		SIDE A (LD remote control unit) Numbers (LD remote control unit) PLAY (LD remote control unit)	A8-4D A8-00 to A8-09 A8-17
Region confirmation mode		AUDIO (LD remote control unit) Numbers (LD remote control unit)	A8-1E A8-01 to A8-08

• Service mode indication

ID Address
Always display error rate. Exponential indication ∗.∗∗e-∗ (with both DVD and CD)
EDC/ID/AV1 error history (ID Address, EDC/ID/AV1 Error, errors of past eight times)
Self-diagnostic function (when mechanism error occurred, display the mechanism error history)

• Error rate average value total (ESC +5)

Calculation number of times displays exponent from average value of eight times.
After the calculation result, display OK/NG. Tray is open in case of NG (with both DVD and CD)
DVD: OK with less than 8.0e-4 CD: OK with less than 7.6e-4

Note: Because an OK/NG judgment cannot be DVD with a static image mode as menu screen, confirm it by an animation.

• Model information indication contents (ESC+CHAP)

Display ⑫ to ⑲ in the test mode indication. However, Change the indication of S as B.E VERSION and it of M as F.E VERSION.
Refer to the "Specification of Model Information Display".

• Background color change

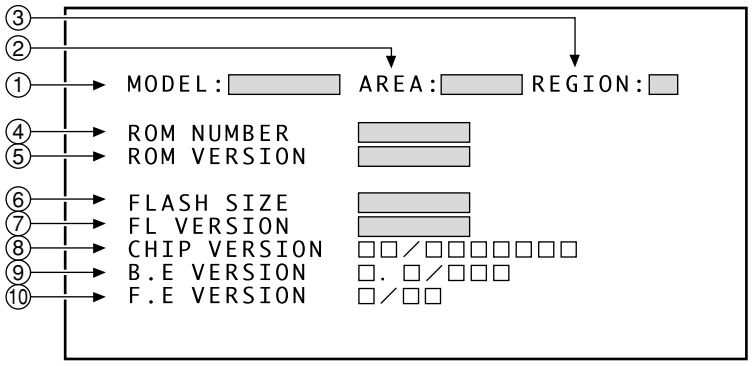
Change blue and green with toggle whenever pressing the key (the background color that green is using with SETUP NAVIGATOR).

• Region confirmation mode

Input region No. after pressing the ESC+AUDIO keys. When it is different from the setting, display and open the tray.

Specification of Model Information Display

• Display contents



Character in bold : Item name
□: Information display

① **Model name**
Display it according to model information set from the FL controller.
② **Destination indication**
Display it according to model information set from the FL controller.
③ **Region No.**
④ **Part number**
⑤ **ROM version**
⑥ **Flash size**
⑦ **FL controller version**

⑧ **CHIP VERSION**
Version of ST CHIP
CUT ID / JTAG ID
(two columns) (eight columns)
⑨ **B.E VERSION**
Version of BACK END (version of ST core software)
□.□ /□□□
softwareVersion . softwareRevision / buildNumber
⑩ **F.E VERSION**
Version of FRONT END (version of mechanism controller CHIP software)
□/□□
MainVersion / SubVersion

Functional Specification of the Service Mode

• FL indication of EDC / ID error (short cut function)

Display it in FL with ESC+CX keys (LD remote control unit).
Indication is released with ESC key during indication.

FL indication contents

00 / 00 / 01 ∗

- Display number of the location that caused EDC and ID errors
- Retry number of times of the latest ID error
- Retry number of times of the latest EDC error

∗ mark: When even once causes AV1 error, lights.

• Service mode screen display

Display to the screen with ESC+CHP/TIM keys.
Release the indication with ESC key.
Indication contents

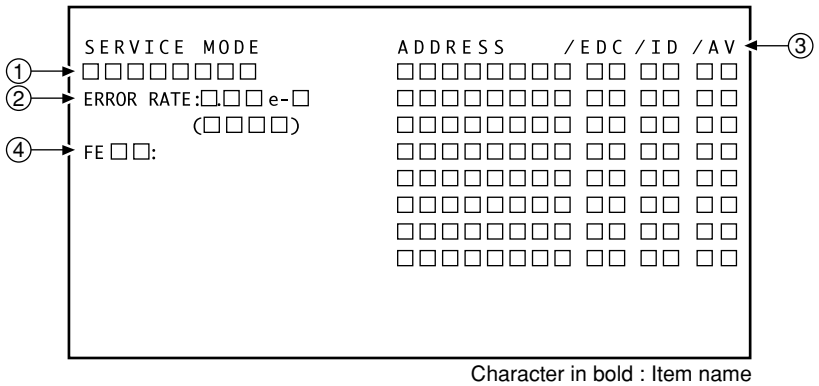
ID Address ①
Always indicate error rate ② and exponent indication
EDC/ID/AV1 error history (ID Address, EDC/ID/AV1 Error, past eight times) ③
Contents of AV1 error
BIT 0: EDC error, FEC I/F buffer overflow and not valid occur in the BE code (B.E error).
BIT 1: ID is different from the target in the BE code (B.E error).
BIT 2: There is error in the EDC data of 2 bytes which added to the FE (F.E error).

• Self-diagnostic function ④

Check that the F.E is normal or not.

FE OK : Abnormality is not found in the F.E.
FE Error : Abnormality is found in the F.E.
Indicate the mechanism error history by pressing the CHP/TIM key once again.
Change indication by pressing the CHP/TIM key with toggle afterwards.
Refer to the "Display of the Mechanism Error History".

Indication plan contents



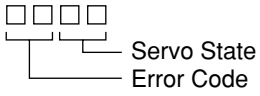
Character in bold : Item name
□: Information display

7.1.2 DISPLAY OF THE MECHANISM ERROR HISTORY

When mechanism error (FE error) occurred, the mechanism error history of maximum past eight times is displayed by pressing the CHP/TIM key during service mode screen display.
Indication displayed in the screen upper part is new error.

• Indication contents

① Error code
Two characters in the front represent the Error Code and two characters in the back represent the Servo State.
The detail is as follows.



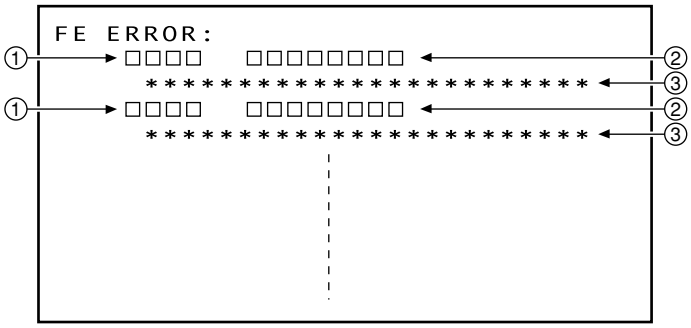
② Error occurrence time
Error indicates the time which occurred after system turned on the power supply.
∗ When time of new error is short, it becomes assumed power off once.

③ Error contents indication
Indicate the error contents which occurred with character.

Examples: When Error code is 0x13 (Focus lost timeout) and error state is 0x05 (Disc judge),
"Focus lost timeout in Disc judge"

∗ Movement in the error occurrence: open the tray when SERVO STATE is Disc Judg, and others stop.
However, error code is exception in the device error of 0xd∗.

Indication contents



• Table of Error Code

FOCUS ERROR	0x0∗	**FOCUS TIMEOUT**	0x1∗
Focus on error	0x01	Focus on timeout	0x11
Focus off error	0x02	Focus off timeout	0x12
Focus lost error	0x03	Focus lost timeout	0x13
Focus balance adjust error	0x04	Focus balance adjust timeout	0x14
Focus gain adjust error	0x05	Focus gain adjust timeout	0x15
Focus sweep error	0x06	Focus sweep timeout	0x16
Focus reflection error	0x07	Focus reflection timeout	0x17
TRACKING ERROR	0x2∗	**TRACKING TIMEOUT**	0x3∗
Tracking on error	0x21	Tracking on timeout	0x31
Tracking off error	0x22	Tracking off timeout	0x32
Tracking lost error	0x23	Tracking lost timeout	0x33
Tracking balance adjust error	0x24	Tracking balance adjust timeout	0x34
Tracking gain adjust error	0x25	Tracking gain adjust timeout	0x35
Tracking jump error	0x26	Tracking jump timeout	0x36
STEPPING ERROR	0x4∗	**STEPPING TIMEOUT**	0x5∗
Stepping on error	0x41	Stepping on timeout	0x51
Stepping off error	0x42	Stepping off timeout	0x52
Stepping lost error	0x43	Stepping lost timeout	0x53
Stepping move error	0x44	Stepping move timeout	0x54
SPINDLE ERROR	0x6∗	**SPINDLE TIMEOUT**	0x7∗
Spindle on error	0x61	Spindle on timeout	0x71
Spindle off error	0x62	Spindle off timeout	0x72
Spindle lost error	0x63	Spindle lost timeout	0x73
Spindle CAV error	0x64	Spindle CAV timeout	0x74
Spindle CLV error	0x65	Spindle CLV timeout	0x75
ACQUISITION ERROR	0x8∗	**ACQUISITION TIMEOUT**	0x9∗
PLL lost error	0x83	PLL lost timeout	0x93
DECODER ERROR	0xa∗	**DECODER TIMEOUT**	0xb∗
ID lost error	0xa3	ID lost timeout	0xb3
DEVICE ERROR	0xd∗	**FAIL SAFE**	0xe∗
SRAM error	0xd1	unexpected error	0xe1

• Table of Servo State

0x00	Reset
0x01	Stop (inside position)
0x02	Stop (any position)
0x03	Braking for stop
0x04	New disc
0x05	Disc judge
0x06	Reserved 1
0x07	Playing
0x08	Start up
0x09	Seeking
0x0A	Pausing
0x0B	Reading BCA
0x0C	Reserved 2
0x0D	
0x0E	
0x0F	

ERROR CODE TABLE

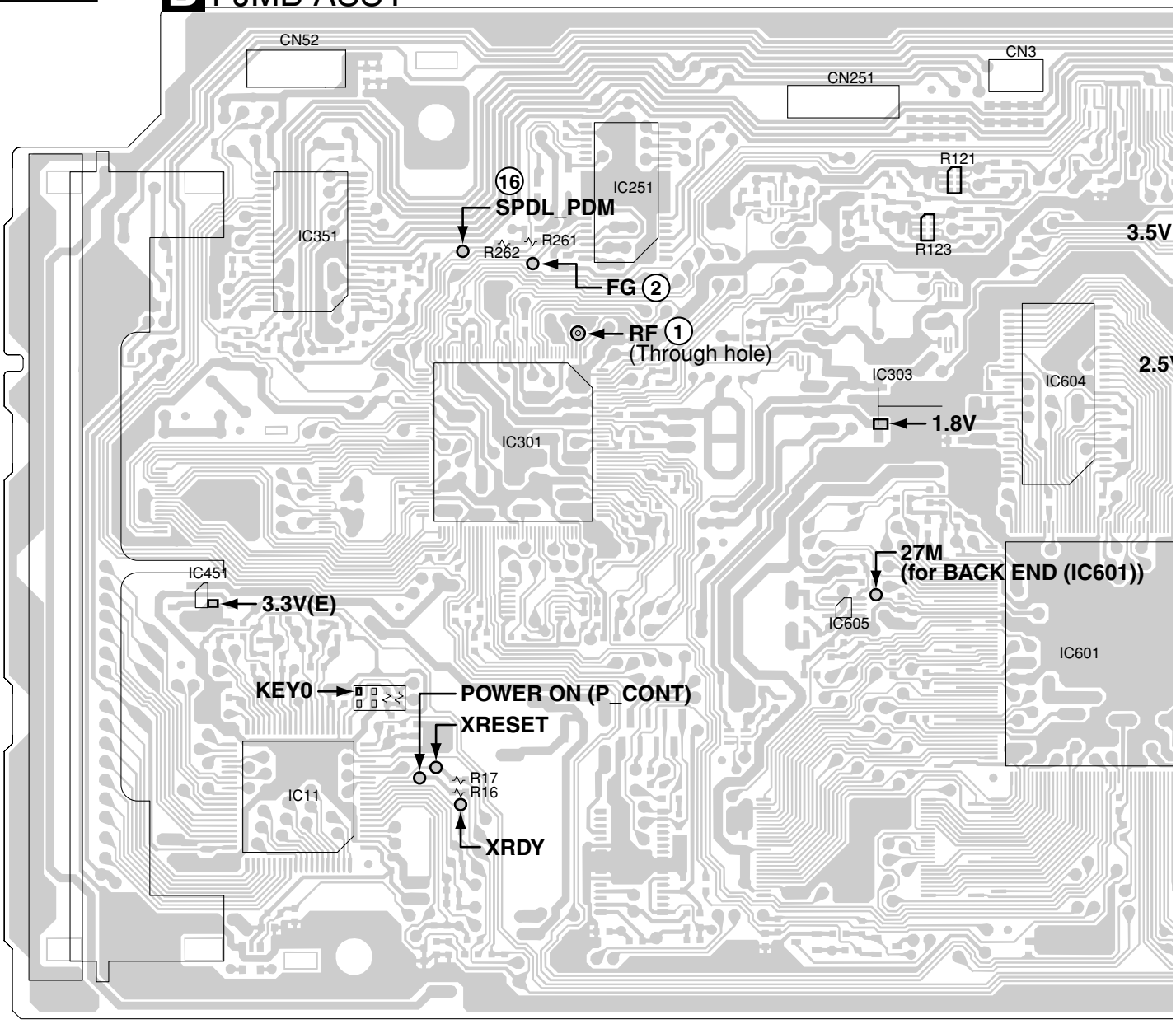
Error Name	No.	Causes	Check Item	Possibility of Trouble	Remarks
FOCUS ERROR (0 x 0*)					
Focus on error	0 x 01	Focus on could not be completed	Are not there a dirt or a scratch in the Disc? Does LD become weak? Does the lens move up and down?	1. Pickup 2. Driver 3. L6315 (Front End IC)	
Focus off error	0 x 02	Focus off could not be completed	Unknown		
Focus lost error	0 x 03	Focus servo is lost	Are not there a dirt or a scratch in the Disc? Does LD become weak?	1. Pickup	
Focus balance adjust error	0 x 04	AFB on could not be completed			
Focus gain adjust error	0 x 05	Focus AGC could not be completed			
Focus sweep error	0 x 06				
Focus reflection error	0 x 07	Dimensions of S curve did not reach to the aim value	Does LD become weak?	1. Pickup	
FOCUS TIMEOUT (0 x 1*)					
Focus on timeout	0 x 11	Did timeout at focus on	Are not there a dirt or a scratch in the Disc? Does LD become weak? Does the lens move up and down?	1. Pickup 2. Driver 3. L6315 (Front End IC)	
Focus off timeout	0 x 12	Did timeout at focus off			
Focus lost timeout	0 x 13	Did timeout at focus backup			
Focus balance adjust timeout	0 x 14	Did timeout at AFB			
Focus gain adjust timeout	0 x 15	Did timeout at AGC			
Focus sweep timeout	0 x 16				
TRACKING ERROR (0 x 2*)					
Tracking on error	0 x 21	Tracking on could not be completed		1. Pickup 2. Driver 3. L6315 (Front End IC)	
Tracking off error	0 x 22	Tracking off could not be completed			
Tracking lost error	0 x 23	Tracking servo is lost		1. Pickup	
Tracking balance adjust error	0 x 24	ATB could not be completed		1. Pickup	
Tracking gain adjust error	0 x 25	AGC could not be completed		1. Pickup	
Tracking jump error	0 x 26	Tracking jump could not be completed			
TRACKING TIMEOUT (0 x 3*)					
Tracking on timeout	0 x 31	Did timeout at tracking on	Are not there a dirt or a scratch in the Disc?	1. Pickup 2. Driver 3. L6315 (Front End IC)	
Tracking off timeout	0 x 32	Did timeout at tracking off			
Tracking lost timeout	0 x 33	Did timeout at tracking backup	Are not there a dirt or a scratch in the Disc?	1. Pickup	
Tracking balance adjust timeout	0 x 34	Did timeout at ATB		1. Pickup	
Tracking gain adjust timeout	0 x 35	Did timeout at AGC		1. Pickup	
Tracking jump timeout	0 x 36	Did timeout at tracking jump			
STEPPING ERROR (0 x 4*)					
Stepping on error	0 x 41	Stepping on could not be completed		1. Pickup 2. Driver 3. L6315 (Front End IC)	
Stepping off error	0 x 42	Stepping off could not be completed			
Stepping lost error	0 x 43	Stepping servo is lost			
Stepping move error	0 x 44	Stepping could not move	Do move to inner and outer periphery of the stepping in the test mode? Do indicate "S-04" at the most inner periphery of the stepping?	1. Stepping motor 2. Inside switch 3. Driver	
STEPPING TIMEOUT (0 x 5*)					
Stepping on timeout	0 x 51	Did timeout at stepping on		1. Pickup 2. Driver 3. L6315 (Front End IC)	
Stepping off timeout	0 x 52	Did timeout at stepping off			
Stepping lost timeout	0 x 53	Did timeout at stepping backup			
Stepping move timeout	0 x 54	Did timeout at stepping movement	Do move to inner and outer periphery of the stepping in the test mode? Do indicate "S-04" at the most inner periphery of the stepping?	1. Stepping motor 2. Inside switch 3. Driver	

Error Name	No.	Causes	Check Item	Possibility of Trouble	Remarks
SPINDLE ERROR (0 x 6*)					
Spindle on error	0 x 61	Spindle on could not be completed			
Spindle off error	0 x 62	Spindle off could not be completed			
Spindle lost error	0 x 63	Spindle lost control			
Spindle CAV error	0 x 64	CAV on could not be completed			
Spindle CLV error	0 x 65	CLV on could not be completed			
SPINDLE TIMEOUT (0 x 7*)					
Spindle on timeout	0 x 71	Did timeout at spindle on			
Spindle off timeout	0 x 72	Did timeout at spindle stop			
Spindle lost timeout	0 x 73	Did timeout at spindle backup	Are not there a dirt or a scratch in the Disc? Is FG output from the driver?	1. Spindle motor 2. Spindle driver	
Spindle CAV timeout	0 x 74	Did timeout at CAV on	Is spindle rotating? Is FG output from the driver? Is the PDM output from L6315?	1. Spindle motor 2. Spindle driver 3. L6315 (Front End IC)	
Spindle CLV timeout	0 x 75	Did timeout at CLV on			
ACQUISITION ERROR (0 x 8*)					
PLL lost error	0 x 83	PLL is lost	Are not there a dirt or a scratch in the Disc?	1. Pickup 2. L6315 (Front End IC)	
ACQUISITION TIMEOUT (0 x 9*)					
PLL lost timeout	0 x 93	Did timeout at PLL backup	Are not there a dirt or a scratch in the Disc?	1. Pickup 2. L6315 (Front End IC)	
DECODER ERROR (0 x a*)					
ID lost error	0 x a3	ID is not readable	Are not there a dirt or a scratch in the Disc?	1. Pickup 2. L6315 (Front End IC)	
DECODER TIMEOUT (0 x b*)					
ID lost timeout	0xb3	Did timeout at ID backup	Are not there a dirt or a scratch in the Disc?	1. Pickup 2. L6315 (Front End IC)	
DEVICE ERROR (0 x d*)					
SRAM error	0 x d1	Cannot access SRAM	Power supply of SRAM Is not bus line short-circuiting?	1. SRAM 2. L6315 (Front End IC) 3. L6315-SRAM bus line	
FAILSAFE (0 x e*)					
Unexpected error	0 x e1	Unexpected error		1. software runaway 3. Software bug	

7.1.3 TEST POINT LOCATION & WAVEFORMS

SIDE A

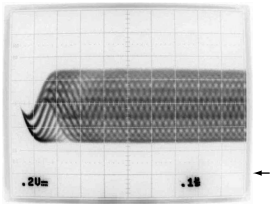
B FJMB ASSY



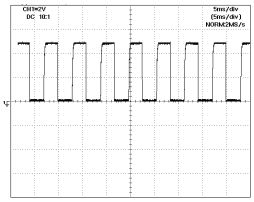
WAVEFORMS

Measurement condition : No. 1, 2, 9, 13 and 14 : reference A1 (DVD), T2-chp 19, Color-bar
No. 3 to 8 : reference A1 (DVD), T2-chp 1

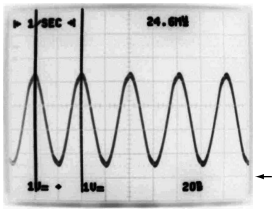
1 **IC301 - pin 3 [RF]**
V: 200mV/div. H: 0.1µsec/div.



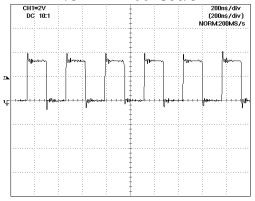
2 **IC251 - pin 24 [FG]**
V: 1V/div. H: 5msec/div.



3 **IC711 - pin 16 [AUDIO DAC -MCK]**
V: 1V/div. H: 20nsec/div.



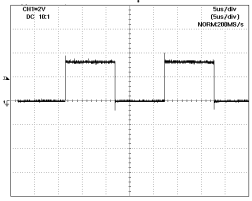
4 **Foot of R721** (IC711 - pin 1)
[AUDIO DAC -BCK]
V: 2V/div. H: 200nsec/div.



13 **Foo**
[S
V: 1

14 **Foo**
[S
V: 1

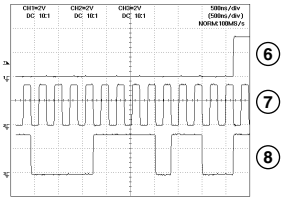
5 **Foot of R723** (IC711 - pin 3)
[AUDIO DAC -LRCK]
V: 2V/div. H: 5µsec/div.



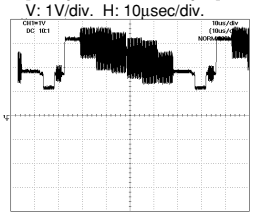
6 **Foot of R723** (IC711 - pin 3)
[AUDIO DAC -LRCK]
V: 2V/div. H: 500nsec/div.

7 **Foot of R721** (IC711 - pin 1)
[AUDIO DAC -BCK]
V: 2V/div. H: 500nsec/div.

8 **Foot of R722** (IC711 - pin 2)
[AUDIO DAC -DATA]
V: 2V/div. H: 500nsec/div.
(Waveform of DATA is unsettled.)

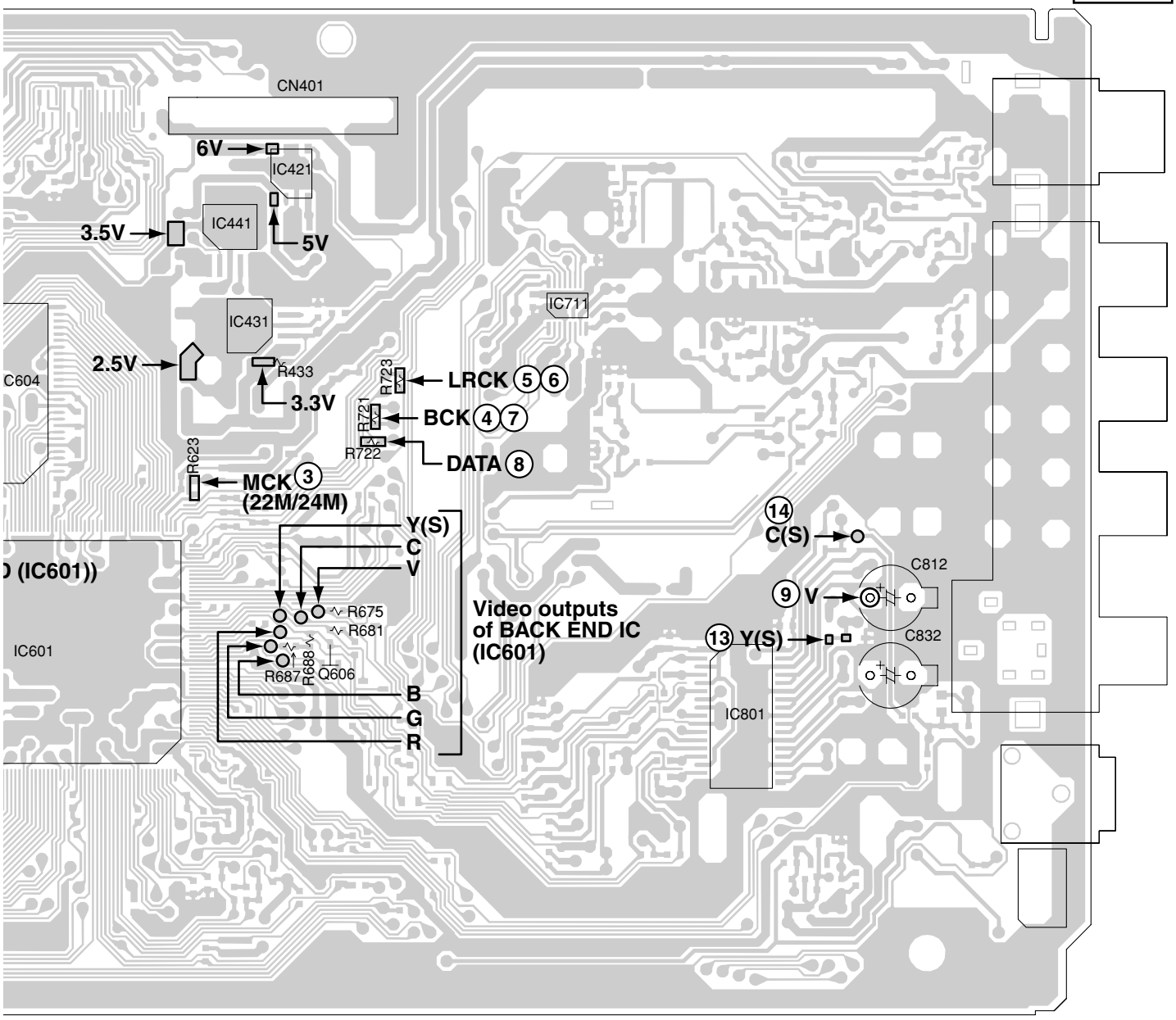


9 **Foot of C812** (IC801 - pin 30, 31)
[Composite Video output]
V: 1V/div. H: 10µsec/div.



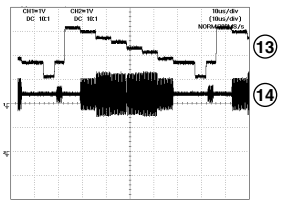
16 **IC3**

SIDE A



13 **Foot of C832** (IC801 - pin 27, 28)
[S Video output -Y]
V: 1V/div. H: 10µsec/div.

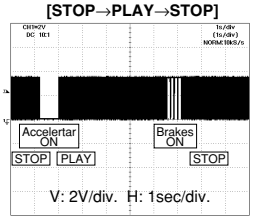
14 **Foot of C822** (IC801 - pin 33)
[S Video output -C]
V: 1V/div. H: 10µsec/div.



31)

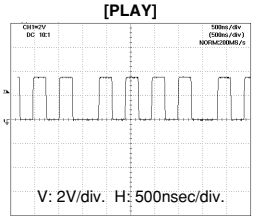
16 **IC301 - pin 42 [SPDL_PDM]**

[STOP→PLAY→STOP]



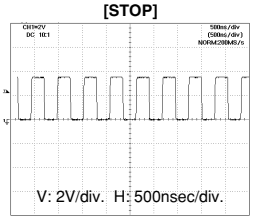
V: 2V/div. H: 1sec/div.

[PLAY]



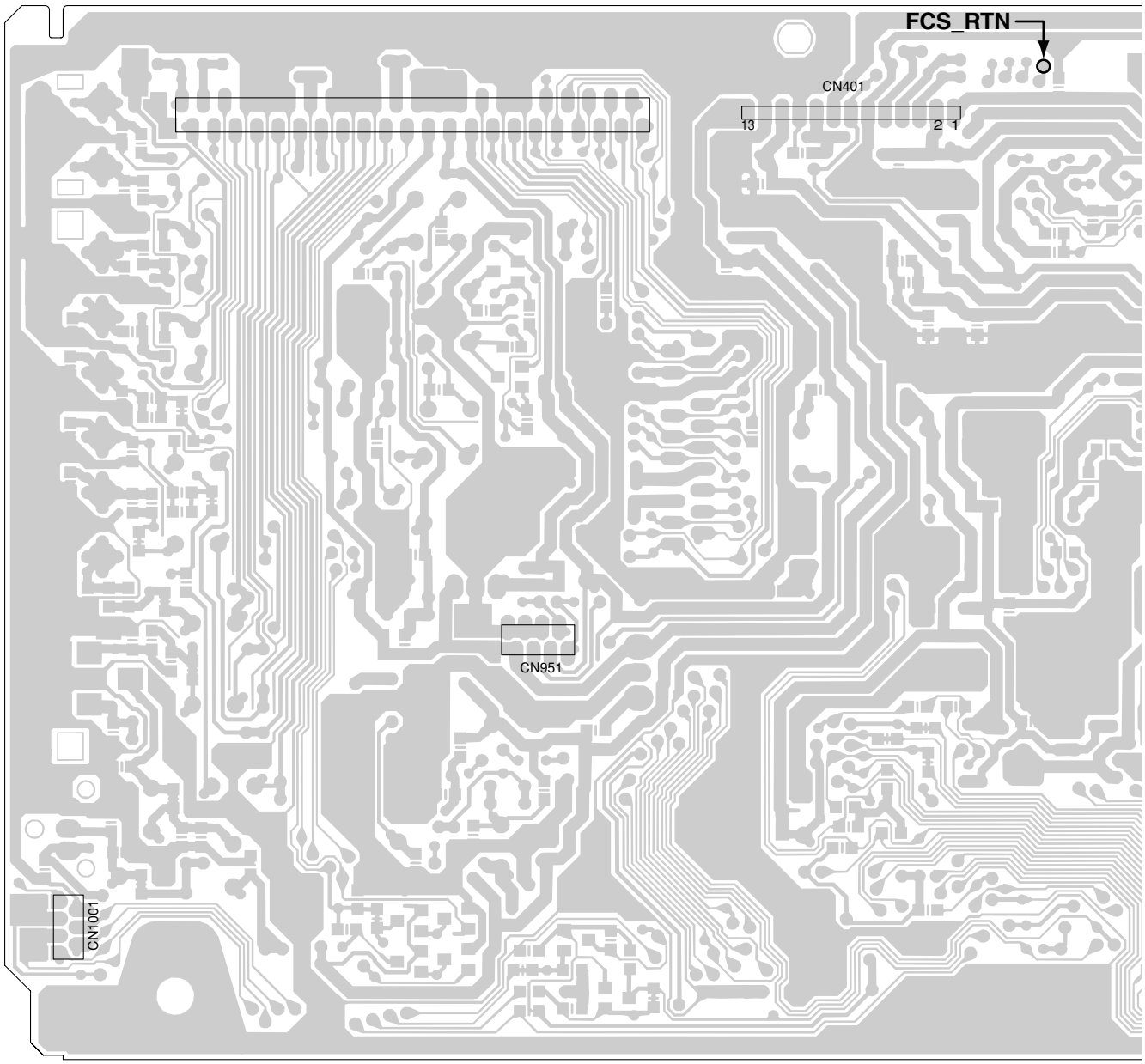
V: 2V/div. H: 500nsec/div.

[STOP]



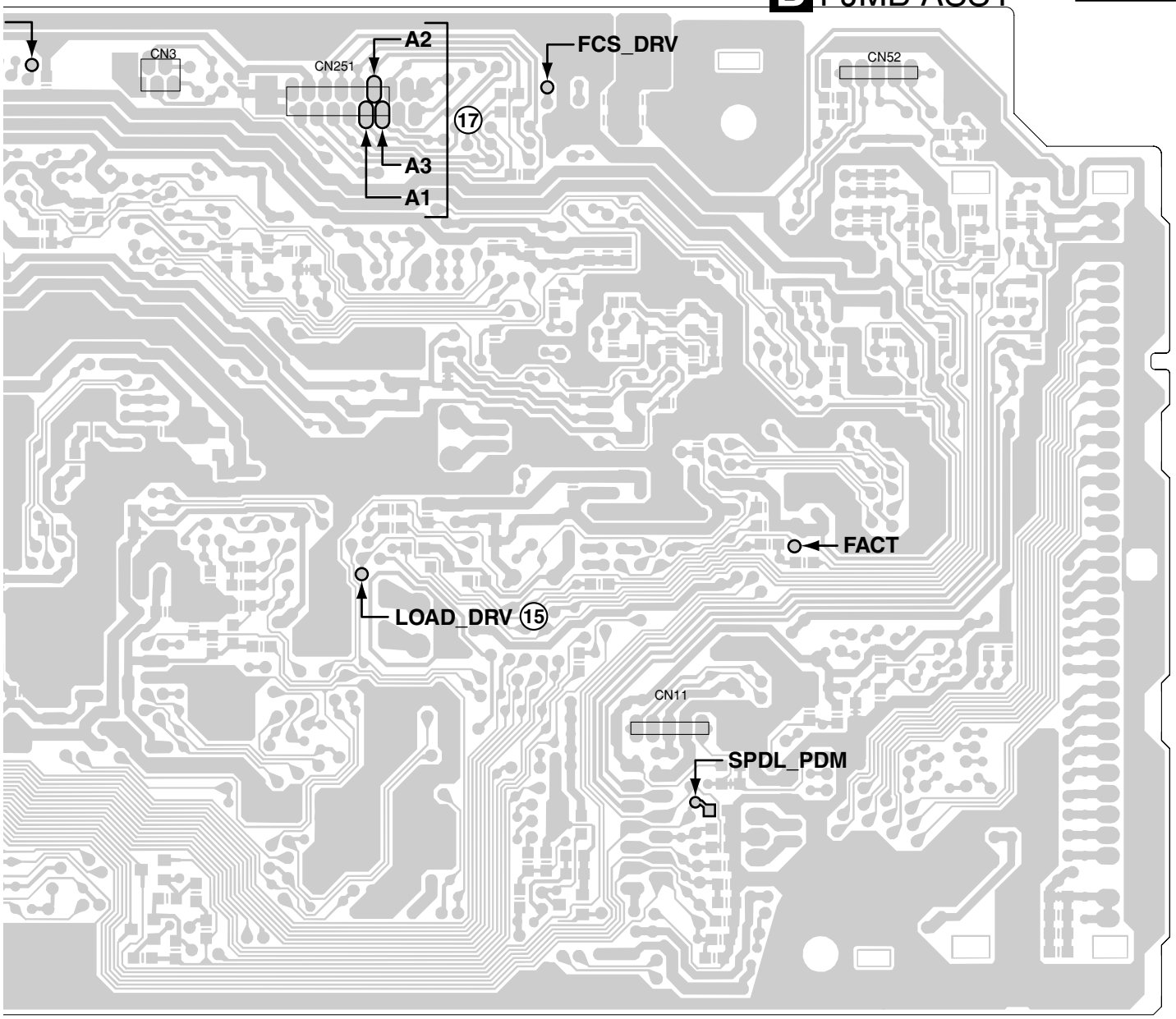
V: 2V/div. H: 500nsec/div.

SIDE B



B FJMB ASSY

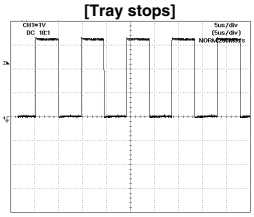
SIDE B



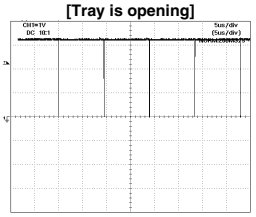
WAVEFORMS

15 **IC601 - pin 116 [LOAD_DRV]**
V: 1V/div. H: 5µsec/div.

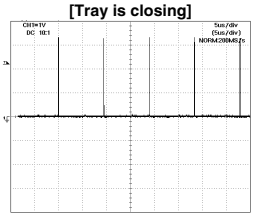
[Tray stops]



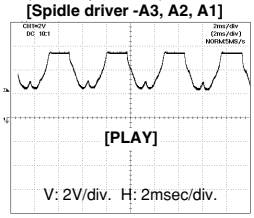
[Tray is opening]



[Tray is closing]



17 **CN251 - pin 12, 11, 10**
(IC251 - pin 2, 4, 7)
[Spidle driver -A3, A2, A1]

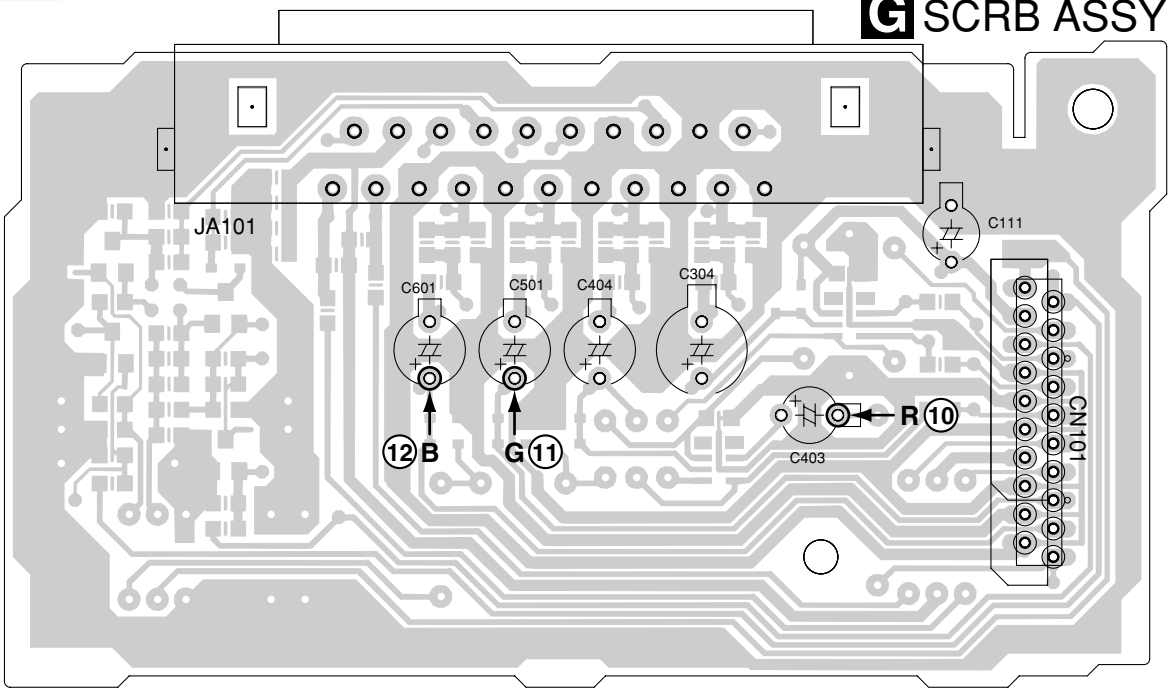


[PLAY]

V: 2V/div. H: 2msec/div.

SIDE A

G SCRB ASSY



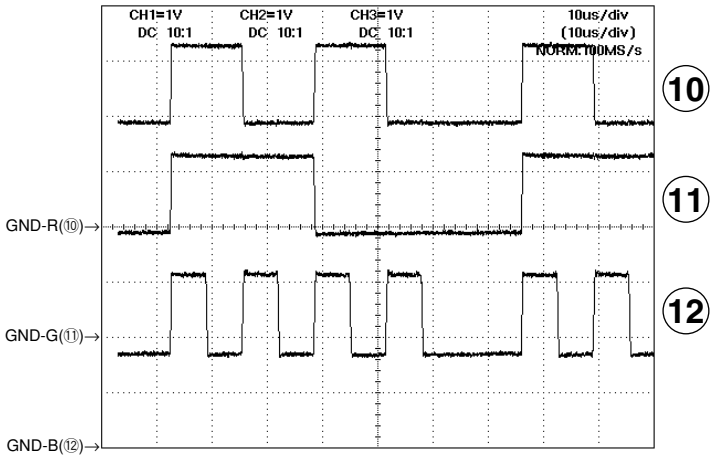
■ WAVEFORMS

Measurement condition : reference A1 (DVD), T2-chp 19, Color-bar

⑩ **Foot of C403** (FJMB: IC801 - pin 21, 22)
[Video output -R]
V: 1V/div. H: 10µsec/div.

⑪ **Foot of C501** (FJMB: IC801 - pin 24, 25)
[Video output -G]
V: 1V/div. H: 10µsec/div.

⑫ **Foot of C601** (FJMB: IC801 - pin 18, 19)
[Video output -B]
V: 1V/div. H: 10µsec/div.



7.1.4 TROUBLE SHOOTING

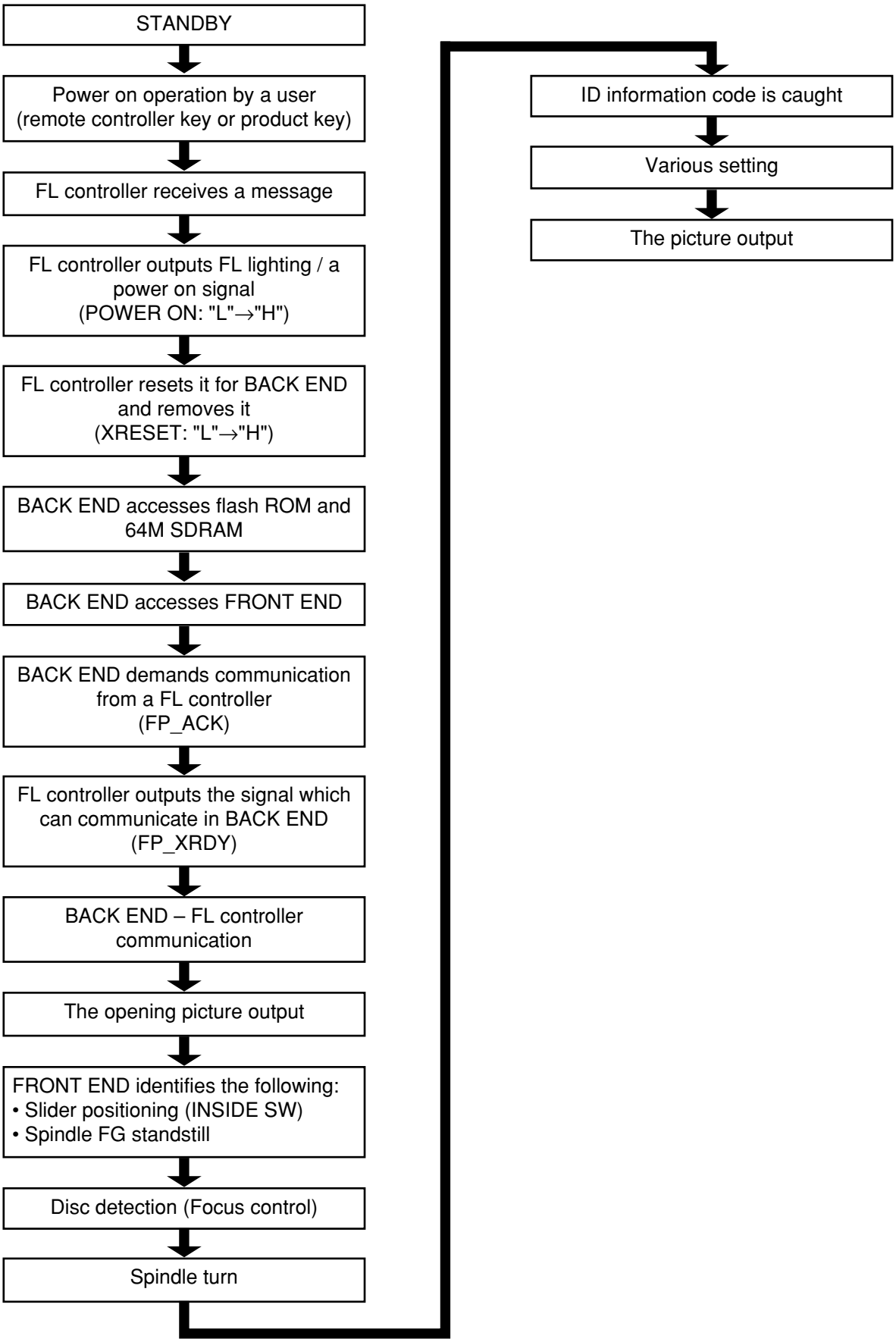
At first confirm error history. (Refer to "7.1.2 DISPLAY OF THE MECHANISM ERROR HISTORY")
When a history was not displayed, refer to this list.

No.	Symptoms	Diagnosis contents	Defectiveness assumption points
1	Cannot power on	Check each voltage of POWER SUPPLY UNIT (E+4V, -28V and FLDC output)	POWER SUPPLY UNIT
		Are not there short-circuit and open-circuit between output connector of POWER SUPPLY UNIT and CN401 of FJMB?	Connector / wire rod
		Check that voltage of IC451-pin 4 is 3.3V.	3.3V regulator
		FJMB IC11-22pin: 0V, is it 3.3V when I pushed a POWER key when I do not push it?	tact-switcies (in case of only a key of a product, NG)
		Does FJMB IC11-pin 17 (SEL IR) receive a message of a signal between 0V - 3.3V when I pushed a wireless remote controller key?	Wireless remote controller receiver light part (in case of only a key of a wireless remote controller, NG)
2	An opening screen is not displayed by a monitor (FL turns on. A mecha does not work.)	Are IC11-pin 12 (XRESET) and IC11-pin 11 (POWER ON) "H" level together?	FL control u-com (IC11)
		• Check each voltage of POWER SUPPLY UNIT(E+6V and SW+3.3V) • As for P-CONT of POWER SUPPLY UNITY, are there around 3V?	POWER SUPPLY UNIT
		IC441-3pin: 3.5V, IC431-pin 3: 2.5V, IC303-pin 3: 1.8V Are these each output?	Each regulator
		Is there number of vibrations in a standard whether crystal resonator does oscillation?	Crystal resonator (27MHz, 20MHz)
		Refer to contents of a FE error displayed by FL display. (SRAM defectiveness, I2C communication line defectiveness, other)	L6315 (FRONT END IC: IC301)
		• Is a signal input into IC603-pin 26 (CE3) just after power on? [L ↔H] →Communication with flash ROM • Is a signal input into IC604 pin-16 (SMIWE), 19pin (SMICS0), 38pin (SMICLK)? [L ↔H] →Communication with SDRAM	STI5519 (BACK END IC: IC601)
		Is a signal output by IC603-pin 28 (CPU _ OE) just after power on? [L ↔H]	Flash ROM (IC603)
		Is a signal input into IC11-pin 16 (FP _ ACK)? [L ↔H] →Communication with FL control u-com	STI5519 (BACK END IC: IC601)
		Is a signal output by IC11-pin 10 (XRDY)? (around 0-3V, L ↔H)	FL control u-com (IC11)
		Is a signal output by IC11-pin 9, 8, 7? (around 0-3V)	FL control u-com -BACK END communication line
3	An opening screen is not displayed by a monitor (FL turns on. A mecha works.)	Check BACK END IC and video signal path between video-out (cf. block diagram)	The video circuit after BACK END
4	Cannot open a tray (An opening screen is displayed by a monitor)	Does voltage of CN52-pin 3, 5 change normally? pin 3 (XCLOSE): It is "H" level by the state that has finished doing CLOSE. pin 5 (OPEN): It is "H" level by the state that has finished doing OPEN.	Tray-SW
		Does LOAD_DRV signal come?	STI5519 (BACK END IC: IC601)
		Is a signal output by IC351-pin 14, 15 (CN52-1, 2pin)? (pin 15: It is about 6V during tray opening, It is about 0V during tray closing) (pin 14: It is about 0V during tray opening, It is about 6V during tray closing)	FTS Driver IC (IC351)
		Are not there wire rod coming out, damage in CN3, CN52?	Connector / wire rod
		When the voltage of a CN251-pin 1 overwhelmed an inside switch, does it change?	Inside switch

No.	Symptoms	Diagnosis contents	Defectiveness assumption points
5	Cannot playback (Focus does not inn)	Is a signal output by IC351-pin 9, 10?	FTS Driver IC (IC351)
		Does 650 LD emit light? Does a pickup lens do up /down? Does not an actuator spring turn?	PICKUP
		Are not resin part damage, a shaft missing? Are not there falling off of turn table, lean abnormality?	Mechanism Assy
		Is not there wire rod coming out of CN151? Is not PU flexible cable damaged?	Flexible cable / connector
		Is signal output by IC301-pin 123 (FACT)? (Device control of around 500mV is output usually. It is ± around 100mV swing by focus up / down.)	L6315 (FRONT END IC: IC301)
6	Cannot playback (Spindle does not turn)	Is a signal output by IC251-pin 2(A3), 4(A2), 7(A1)? It is fixed, and is not there IC251-pin 18 HIGH whether it is fixed, and there is not IC251-pin 23 LOW?	Spindle Driver IC (IC251)
		Are not there part falling off, alien substance adhesion in spindle motor part?	Mechanism Assy (Spindle motor)
		Are not there wire rod coming out, damage in CN251?	Flexible cable / connector
		Is signal output by IC301-pin 123 (SPDL_PDM)?	L6315 (FRONT END IC: IC301)
7	Cannot playback (Playback stops)	Does not 650nLD deteriorate? If there is the both ends voltage of R121 more than 0.7V, 650nLD deteriorates surely.	650nLD deteriorates. (Cannot playback DVD)
		Does not 780nLD deteriorate? If there is the both ends voltage of R123 more than 1.2V, 780nLD deteriorates surely.	780nLD deteriorates. (Cannot playback CD)
		Is not there abnormality in FG waveform?	FG output: Spindle Driver IC (IC251)
		Are not there wound and a dirt on the disc?	Disc
8	Picture disturbance during playback (block noise, freeze, other)	Are not there wound and a dirt on the disc? Do not you set a disc of standard outside?	Disc
9	Audio is not output (Picture is normal)	Check the waveform (BCK, LRCK, MCLK, DATA).	STI5519 (BACK END IC: IC601)
		Is signal output by IC711-pin 7, 8?	AUDIO DAC IC (IC711)

7.1.5 SEQUENCE AFTER THE POWER ON

Flow chart from power on to the picture output

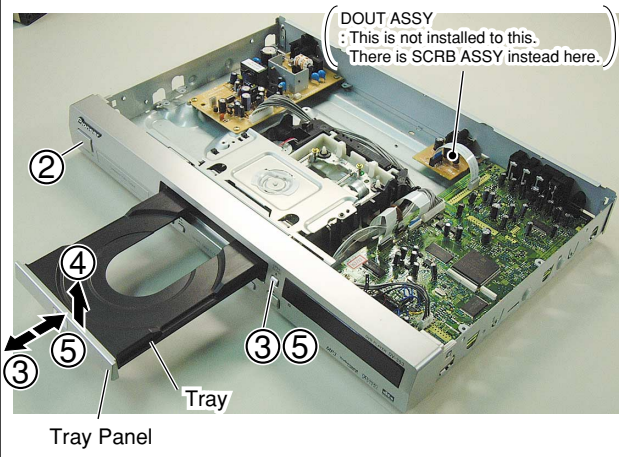

STANDBY
Power on operation by a user (remote controller key or product key)
FL controller receives a message
FL controller outputs FL lighting / a power on signal (POWER ON: "L"→"H")
FL controller resets it for BACK END and removes it (XRESET: "L"→"H")
BACK END accesses flash ROM and 64M SDRAM
BACK END accesses FRONT END
BACK END demands communication from a FL controller (FP_ACK)
FL controller outputs the signal which can communicate in BACK END (FP_XRDY)
BACK END – FL controller communication
The opening picture output
FRONT END identifies the following:
• Slider positioning (INSIDE SW)
• Spindle FG standstill
Disc detection (Focus control)
Spindle turn
ID information code is caught
Various setting
The picture output

7.1.6 DISASSEMBLY

■ DIAGNOSIS OF FJMB ASSY

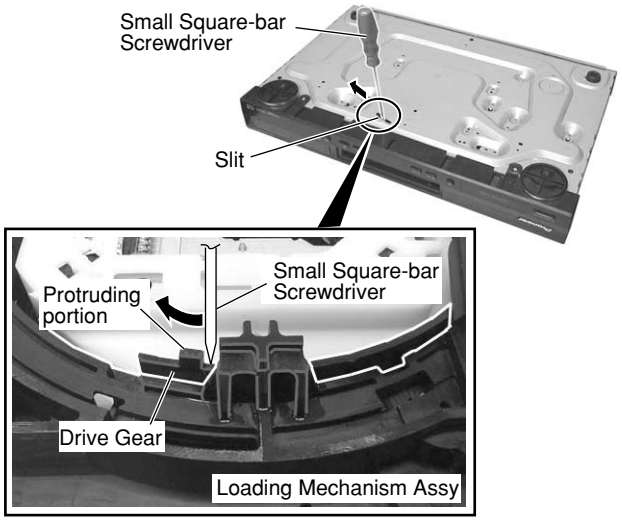
1 Bonnet and Tray Panel

① Remove the Bonnet (Screws × 6)
② Power ON
③ Tray open (⏏)
④ Remove the Tray Panel
⑤ Tray close (⏏)
⑥ Pull out the Power Cable from the outlet.



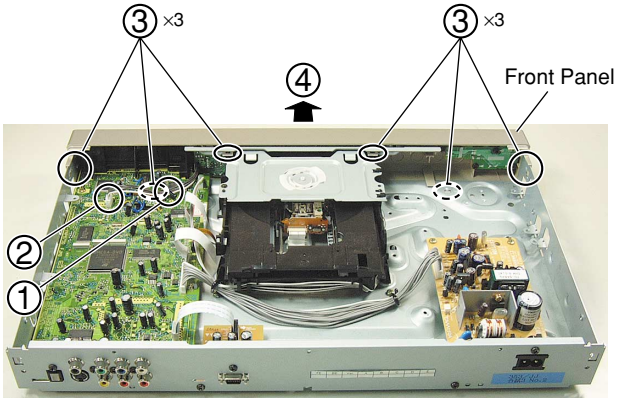
☞How to Open the Tray by Manual Operating

In the reverse state, pass a small screwdriver through a slit and slide a protruding portion of the Drive Gear of the Loading Mechanism Assy to the direction of arrow.
If the Tray moved toward the front about 2 or 3 cm, pull out the Tray by hands.



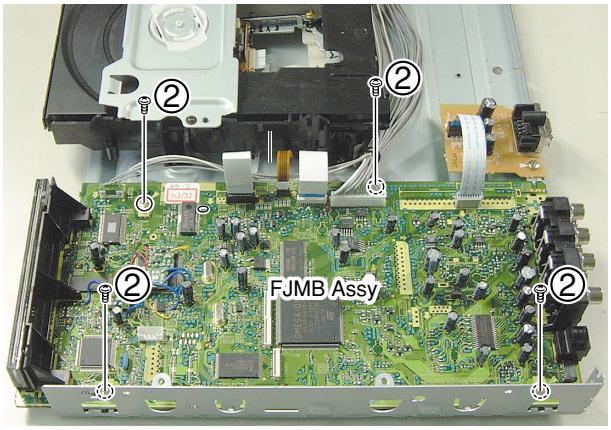
2 Front Panel Assy

① Unclamp the wire.
② Disconnect the wiring.
③ Unhook (×6)
④ Remove the Front Panel.

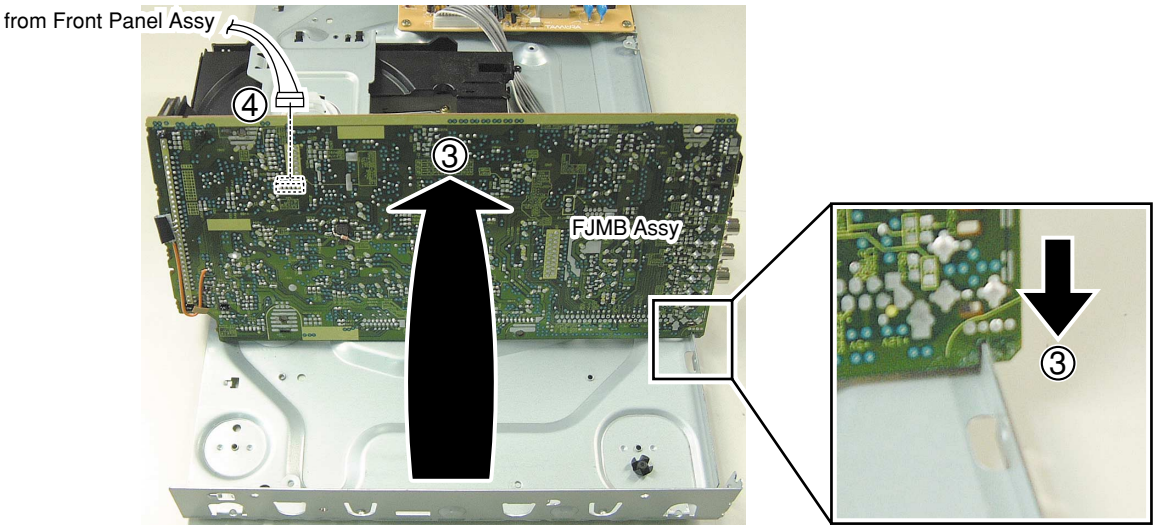


3 Diagnosis of FJMB Assy

① Unscrew the Rear Panel and remove the Rear Panel (Screw ×8).
② Unscrew the FJMB Assy (Screw ×4).



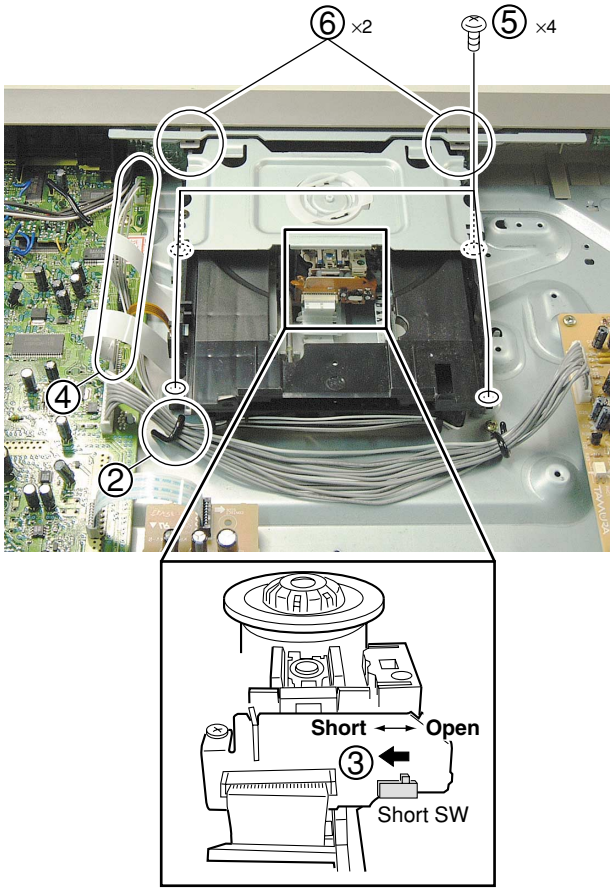
③ Stand the FJMB Assy.
④ Set the Front Panel Assy (one connector) to the FJMB Assy.



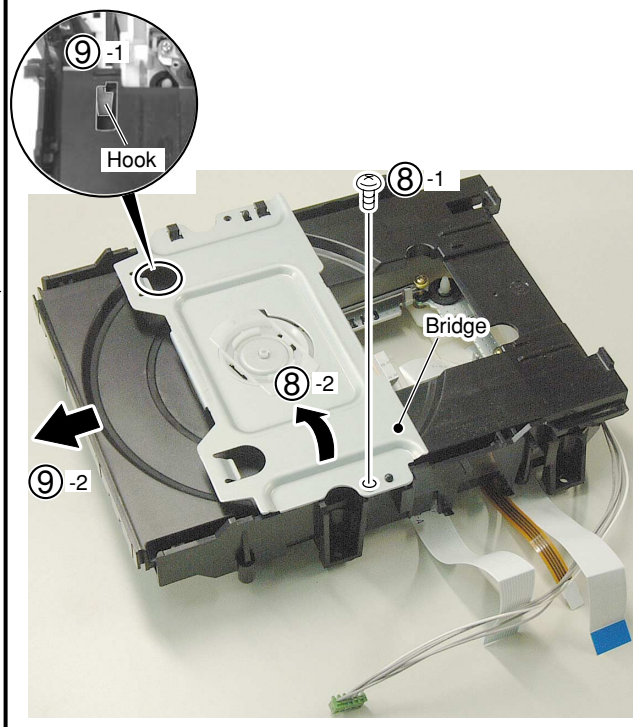
⑤ Put the Power Cable in the outlet.
⑥ Power ON
⑦ Set the Test Disc.
⑧ Playback with a test disc, and diagnose the FJMB Assy.

Disassembly of the Traverse Mechanism Assy and the Pickup Assy

① Remove the Bonnet and the Tray Panel.
② Unclamp the wire.
③ Turn the Short SW to Short side.
④ Disconnect the wiring (×4).
⑤ Unscrew the Loading Mechanism Assy (Screws ×4).
⑥ Unhook (×2).
⑦ Remove the Loading Mechanism Assy.



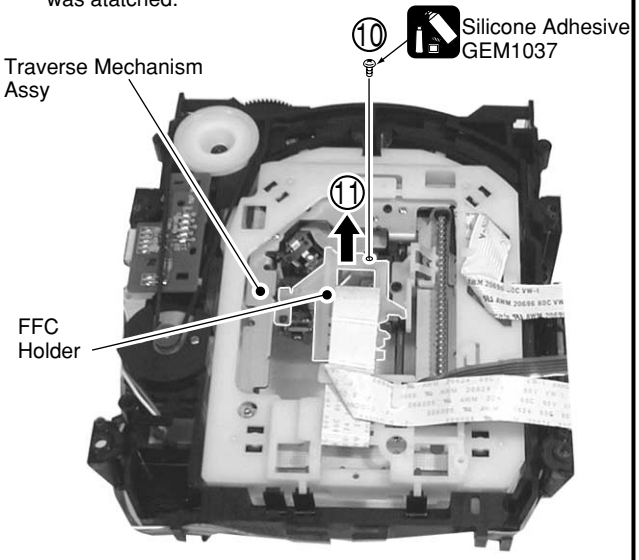
⑧ Remove the Bridge (Screw ×1).
⑨ Pull out the Tray and remove it while unhooking a Hook.



⑩ Remove a screw.

Cautions:
Screw is locked with Silicone Adhesive.
Please lock it with Silicone Adhesive when installs it.

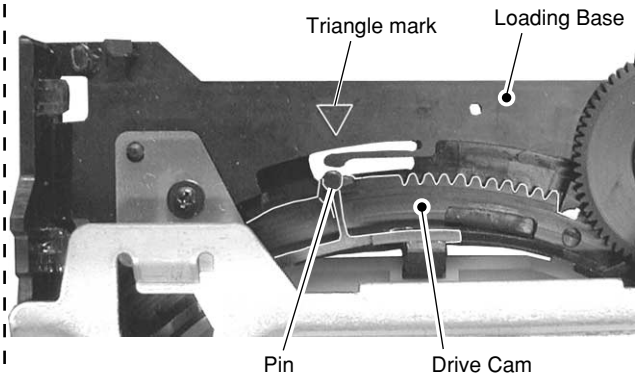
⑪ Remove the FFC Holder with the state which Flexible Cable was atatched.



● Bottom View

☞ Caution in the tray insertion

In the Tray insertion, insert it after matching a triangle mark of the Loading Base and a position of pin of the Drive Cam.



Traverse Mechanism Assy

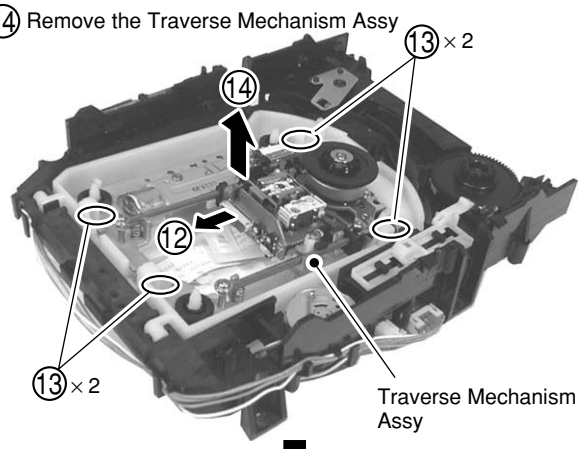
Pickup Assy

● **When Removing The Traverse Mechanism Assy**

⑫ Remove the Pickup Flexible Cable

⑬ Unhook (×4)

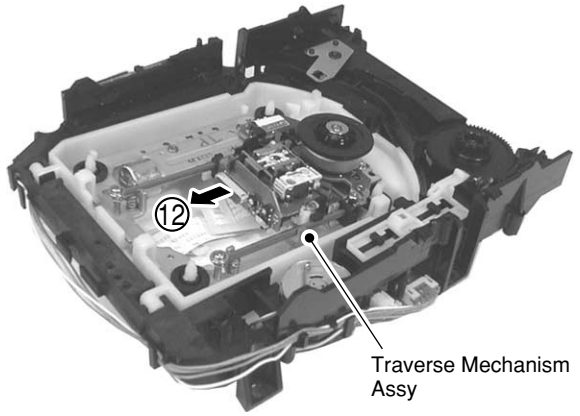
⑭ Remove the Traverse Mechanism Assy



Exchange

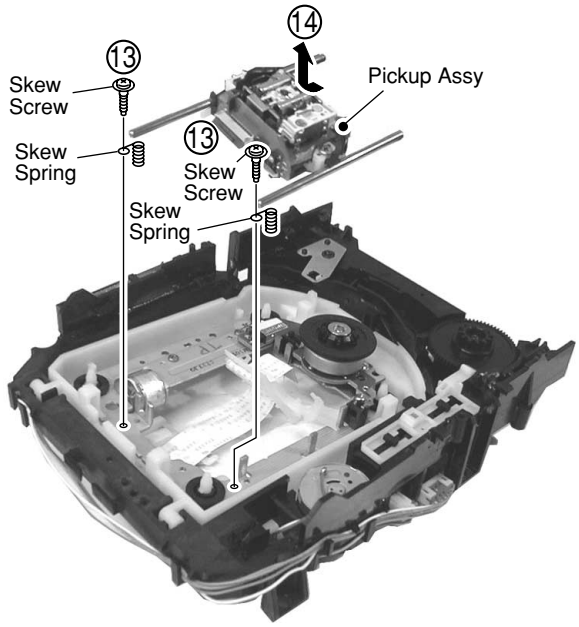
● **When Removing The Pickup Assy**

⑫ Remove the Pickup Flexible Cable.



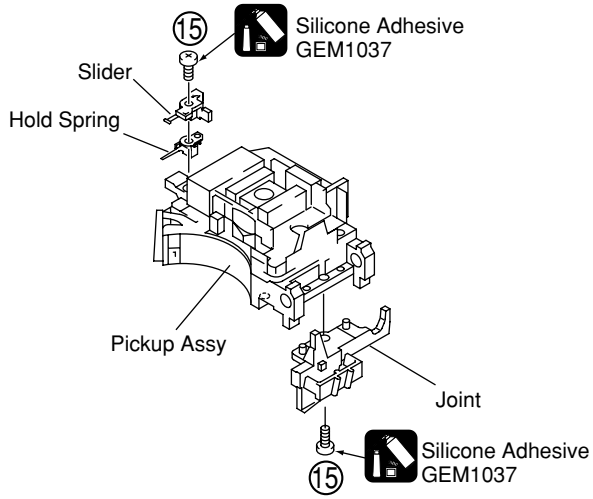
⑬ Remove two Skew Screws and two Skew Springs.

⑭ Remove the Pickup Assy.



⑮ Remove two screws.

Cautions:
Screw is locked with Silicone adhesive.
Please lock it with Silicone adhesive when installs it.

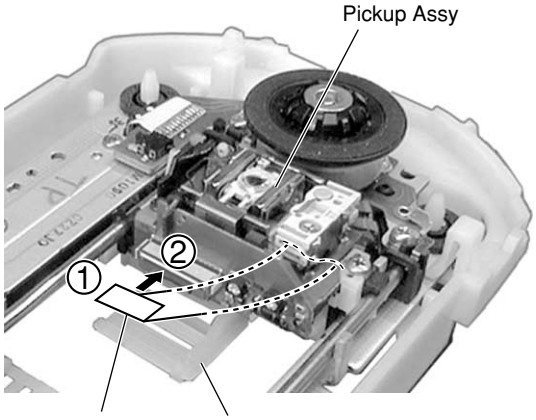


Exchange

☞Styling the Pickup Flexible Cable

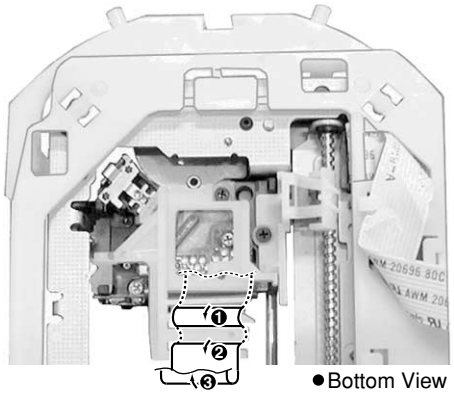
① Fold a edge of lining part of the Pickup Flexible Cable.

② Insert the Pickup Flexible Cable in connector, and lock it surely.



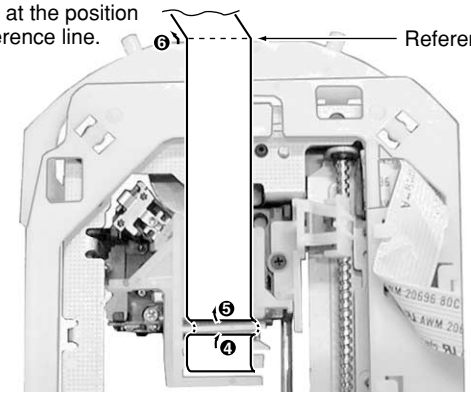
Caution:
Move the Pickup to the innermost of the disc.

③ Perform the styling as shown in figure below.

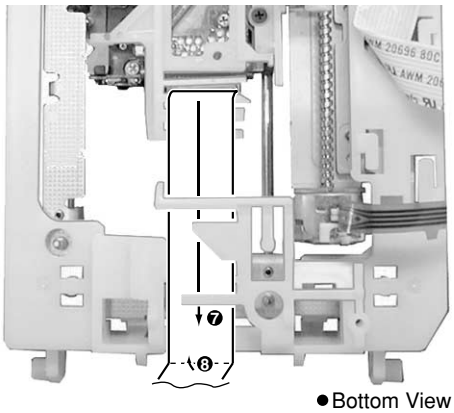


●Bottom View

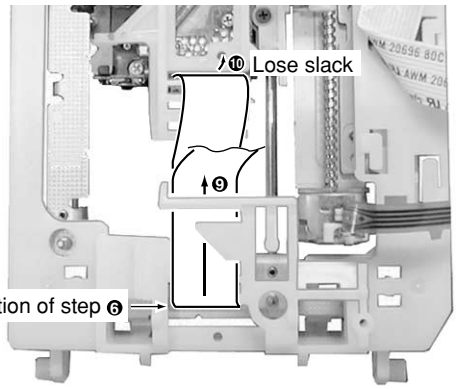
Fold it at the position of reference line.



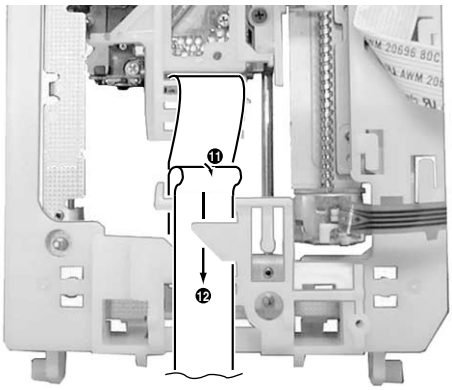
●Bottom View



●Bottom View



●Bottom View



●Bottom View

7.2 IC

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

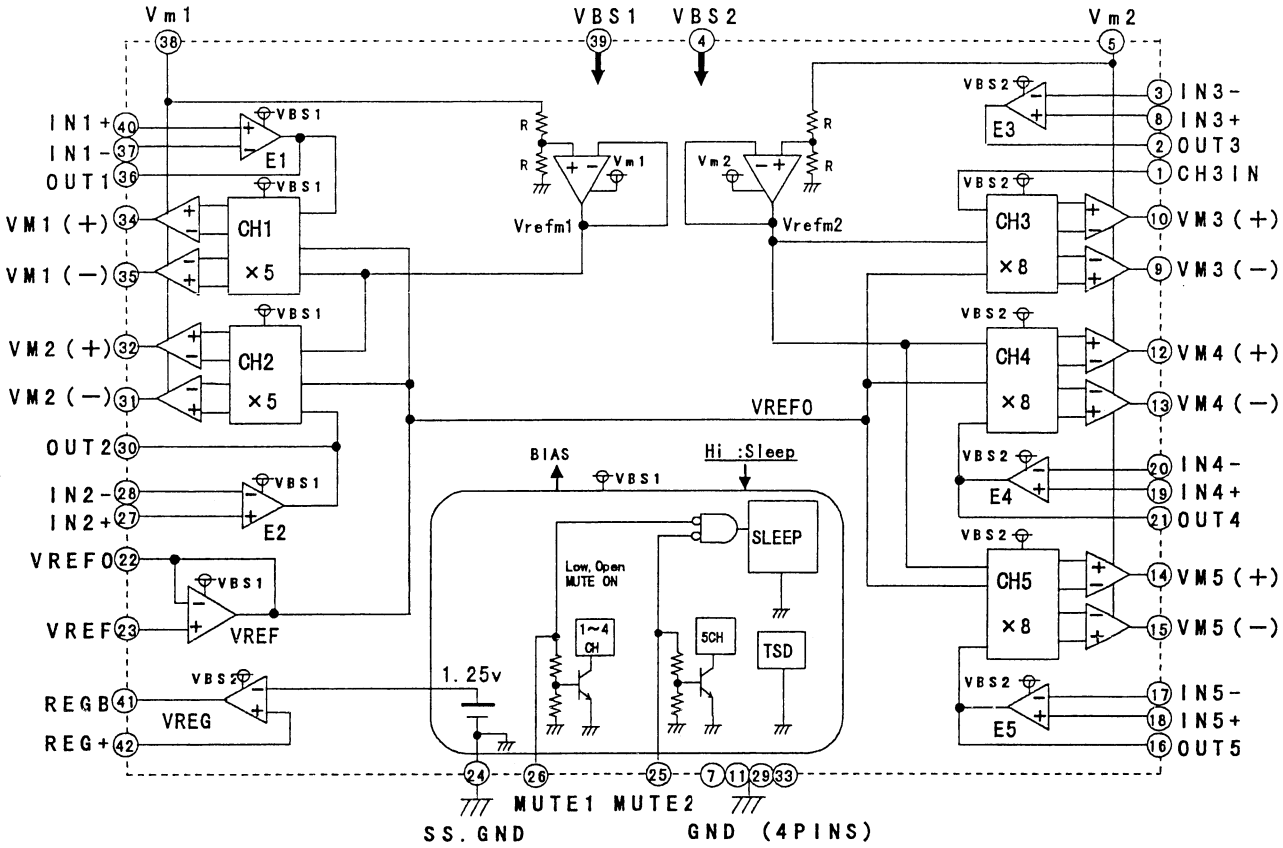
• List of IC

M56788AFP, MM1567AJ, STI5519AVB-B0C, PE5314B, L6315ATXXTY, BA6664FM, PCM1742KE

■ M56788AFP (FJMB ASSY : IC351)

• FTS Driver IC

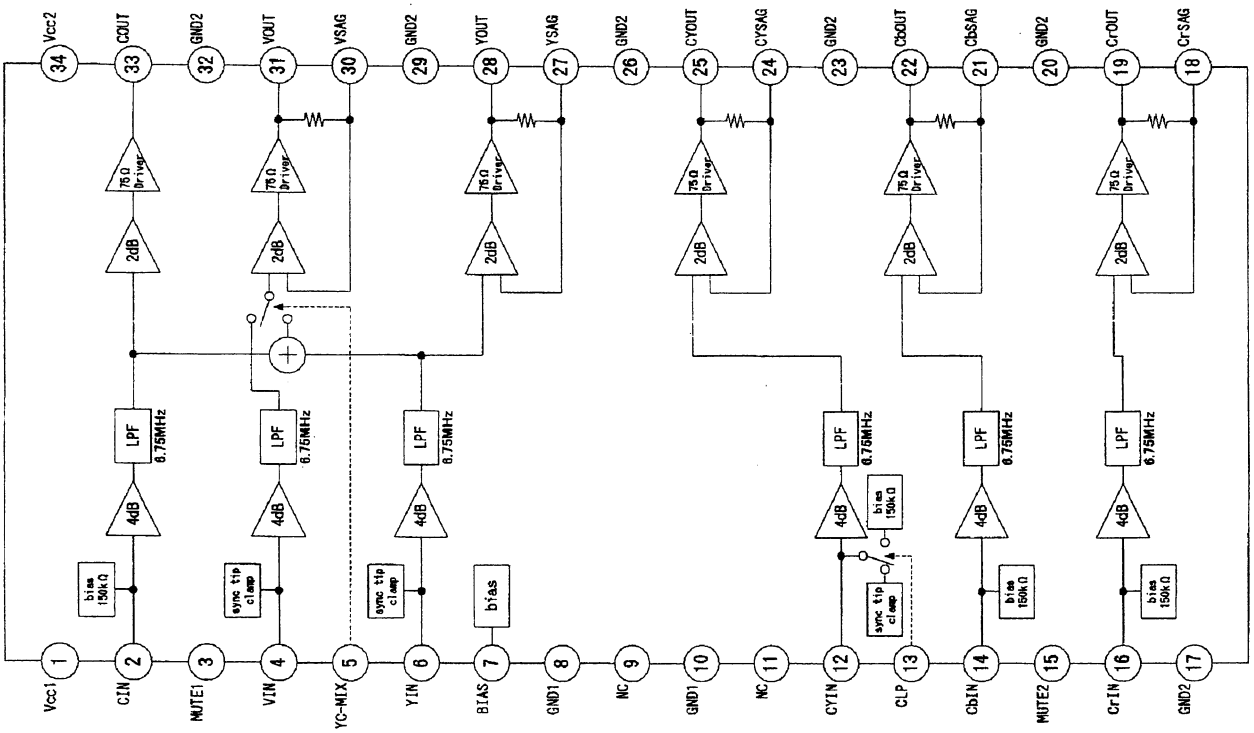
● Block Diagram



■ MM1567AJ (FJMB ASSY : IC801)

• DVD Video Amp IC

● Block Diagram



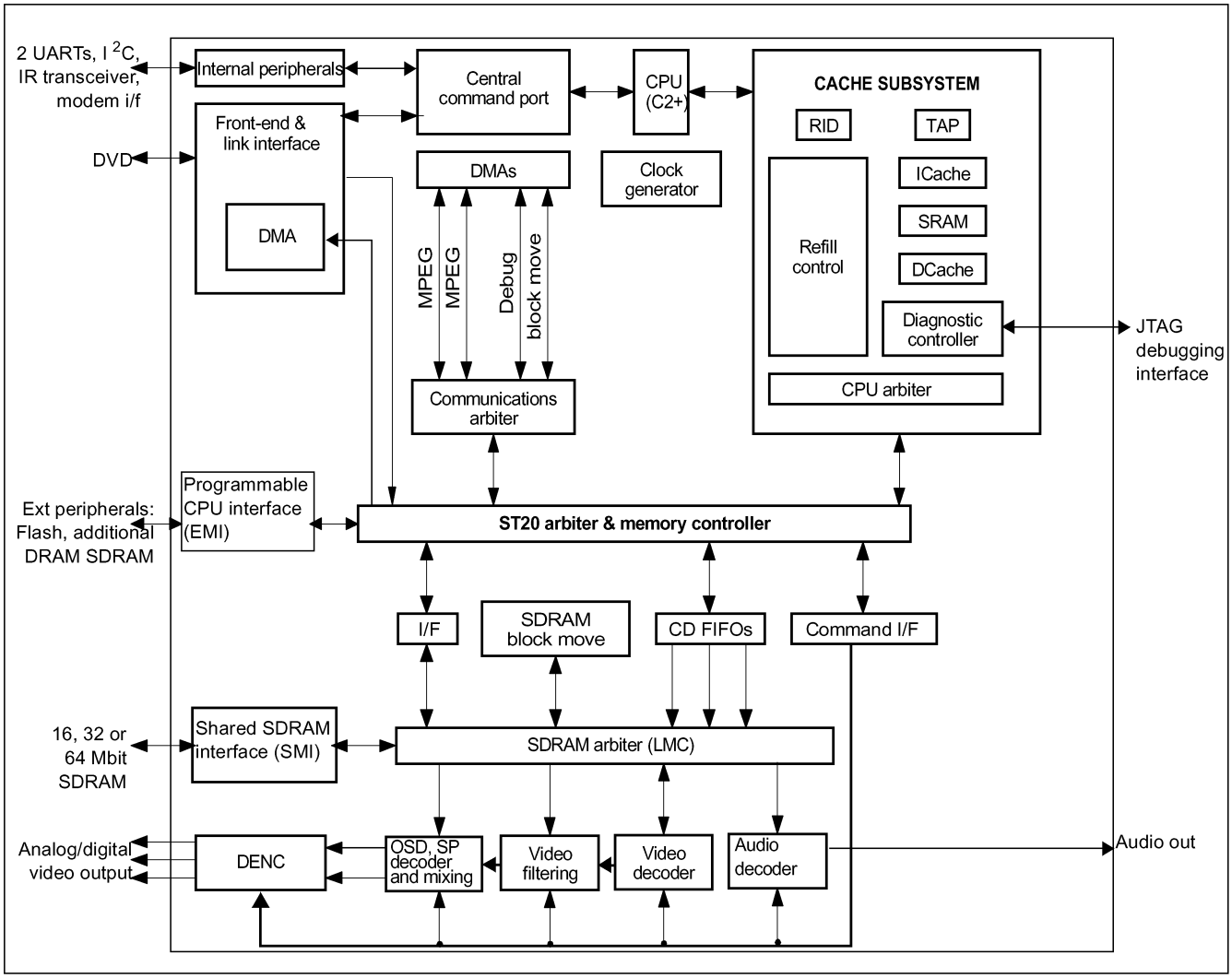
● Pin Function

No.	Name	Pin Function	No.	Name	Pin Function
1	VCC1	VCC	18	CrOUT	Signal output
2	CIN	Croma input	19	CrSAG	SAG correction
3	MUTE1	Mute select	20	GND2	GND
4	VIN	Video input	21	CbOUT	Signal output
5	YC MIX	YC MIX select	22	CbSAG	SAG correction
6	YIN	Video input	23	GND2	GND
7	BIAS	Bias	24	CYOUT	Signal output
8	GND1	GND	25	CYSAG	SAG correction
9	NC	NC	26	GND2	GND
10	GND1	GND	27	YOUT	Signal output
11	NC	NC	28	YSAG	SAG correction
12	CYIN	Luminance input	29	GND2	GND
13	CLP	Input clamp select	30	VOUT	Signal output
14	CbIN	Component input	31	VSAG	SAG correction
15	MUTE2	Mute select	32	GND2	GND
16	CrIN	Component input	33	COUT	Croma output
17	GND2	GND	34	VCC2	VCC

■ STI5519AVB-B0C (FJMB ASSY : IC601)

- **Back End IC**

● Block Diagram



● Pin Function

No.	Signal name	Dir.	Pin Functions
1	FP_SO	OUT	Front Panel interface. (Soft) Serial transfer data output.
2	A_DATA3	OUT	Reserved
3	XAMUTE	OUT	Analog audio output line muteing output 'L'.
4	VDD_3V3	–	3.3 V Power supply
5	VSS	–	Ground
6	AQE_XCS	OUT	Reserved Audio Quality Enhancer IC's chip-select output.
7	SQUEEZ	OUT	S-Video output S1/S2 control signal at squeez output mode 'H'.
8	LETTER	OUT	S-Video output S1/S2 control signal & EURO(SCART) connecter (FUNCTION SWITCHING) signal at letter-box output mode 'H'.
9	TRYPOS	OUT	In case of NOT carusel 5 disc changer, this port is N.C.(output)
	TRYPOS	IN	Carousel 5 Disc Chenger only. Tray rotete puls input. Capture function can be used.
10	V_SEL1	OUT	For EURO(SCART) connecter (BLINKING) signal 'L' : RGB output disable 'H' : RGB output enable
11	RTS	OUT	UART(RS-232C) Request To Send signal output.
12	V_SEL2	OUT	"For EURO(SCART) connecter V/Y, R/C signal select 'L' : VRGB output = VRGB 'H' : VRGB output = YCGB
13	CTS	IN	UART(RS-232C) Clear To Send signal input.
14	VDD_2V5	–	2.5 V Power supply
15	VSS	–	Ground
16	FE_DATA	IN	Front-End L6315 stream interface. Searial data input.
17	FE_BCLK	IN	Front-End L6315 stream interface. Searial clock input.
18	FE_DVALID	IN	Front-End L6315 stream interface. Data valid flag input.
19	FE_SYNC	IN	Front-End L6315 stream interface. Searial synchronize flag input.
20	FE_EVALID	IN	Front-End L6315 stream interface. If STi5588 then RS-SPLIT error valid flag.
21	FE_ECCBST	IN	Front-End L6315 stream interface. If STi5588 then RS-SPLIT ECC Block Start flag.
22	TP- (VQE_XCS)	OUT	Reserved
23	VDD_RGB	–	RGB circuit 2.5 V Power supply
24	VSS_RGB	–	RGB circuit Ground
25	B_OUT	OUT	B / Cb
26	G_OUT	OUT	G / Y
27	RC_OUT	OUT	R / Cr
28	VREF_RGB	IN	RGB DAC reference
29	IREF_RGB	IN	RGB DAC electric current reference
30	VDD/YCC	–	YC circuit 2.5 V Power supply
31	VSS_YCC	–	YC circuit Ground
32	Y_OUT	OUT	Y
33	C_OUT	OUT	C
34	CV_OUT	OUT	CV
35	VREF_YC	IN	YCC DAC reference

No.	Signal name	Dir.	Pin Functions
36	IREF_YC	IN	YCC DAC electric current reference
37	VDD_2V5	–	2.5 V Power supply
38	VSS	–	Ground
39	XAMUTE2	OUT	In case of NOT Karaoke model, this port is N.C.(output).
			Karaoke model Before MIC mixing stage audio muteing output 'L'.
40	MIC_XON1	OUT	In case of NOT Karaoke model, this port is N.C.(output).
			Karaoke model MIC mixing chanel control output.
41	MIC_XON2	OUT	In case of NOT Karaoke model, this port is N.C.(output).
		OUT	MIC_ON2 : MIC_ON1 : mode 0 0 : Don't use. 0 1 : Mix to Center Speaker 1 0 : Mix to main L/R channel 1 1 : OFF
42	TP-x	OUT	Reserved
43	CLAMP	OUT	In case of NOT carusel 5 disc changer, this port is N.C.(output)
		IN	Carousel 5 Disc Chenger only. 'H' show disc clampe complete postion.
44	XUNCLAMP	OUT	In case of NOT carusel 5 disc changer, this port is N.C.(output)
		IN	Carousel 5 Disc Chenger only. 'H' show disc un-clampe complete postion.
45	KDSP_RST	OUT	Reserved
46	44X48	OUT	In case of NOT Karaoke model, this port is N.C.(output)
			Karaoke model KARAOKE-DSP master clock 1/2 mode 'L'.
47	VDD3V3	–	3.3 V Power supply
48	VDD_PCM	–	2.5 V Power supply
49	VSS_PCM	–	Ground
50	VSS	–	Ground
51	A_BCK	OUT	Audio DAC clock
52	A_DATA0	OUT	Audio DAC Front L,R data
53	A_DATA1	OUT	Audio DAC Center, LFE data
54	A_DATA2	OUT	Audio DAC Surround L,R data
55	A_MCLK	OUT	Audio DAC Master clock
56	A_LRCK	OUT	Audio DAC L/R clock
57	DOUT	OUT	S/PDIF(IEC60958) digital audio output.
58	SMI_A4	OUT	SMI SDRAM addresss
59	SMI_A5		
60	SMI_A6		
61	SMI_A7		
62	SMI_A8		
63	SMI_A9		
64	VDD_2V4	–	2.5 V Power supply

No.	Signal name	Dir.	Pin Functions
65	VSS	–	Ground
66	SMI_A3	OUT	SMI SDRAM address
67	SMI_A2		
68	SMI_A1		
69	SMI_A0		
70	SMI_A10		
71	SMI_A11		
72	SMI_A12		
73	SMI_A13		
74	SMI_CS0	OUT	SMI SDRAM chip select
75	SMI_CS1	OUT	2nd SMI SDRAM chip select
76	SMI_RAS	OUT	SMI SDRAM RAS
77	SMI_CAS	OUT	SMI SDRAM CAS
78	SMI_WE	OUT	SMI SDRAM Write Enable
79	SMI_DQML	OUT	SMI SDRAM Lower DQM
80	SMI_DQMU	OUT	SMI SDRAM Upper DQM
81	VDD_3V3	–	3.3 V Power supply
82	SMI_CLK	IN	SDRAM clock input.
83	VSS	–	Ground
84	SMI_D0	I/O	SMI SDRAM data
85	SMI_D1		
86	SMI_D2		
87	SMI_D3		
88	SMI_D4		
89	SMI_D5		
90	SMI_D6		
91	SMI_D7		
92	SMI_D8		
93	SMI_D9		
94	VDD_2V5	–	2.5 V Power supply
95	SMI_CLK	OUT	SDRAM clock output.
96	VSS	–	Ground
97	SMI_D10	I/O	SMI SDRAM data
98	SMI_D11		
99	SMI_D12		
100	SMI_D13		
101	SMI_D14		
102	SMI_D15		
103	KDSP_XCS	OUT	In case of NOT Karaoke model, this port is N.C.(output).
			Karaoke model Exteranal DSP chip select 'L'.
104	KDSP_THRU	OUT	In case of NOT Karaoke model, this port is N.C.(output).
			Karaoke model Exteranal DSP through pass mode 'L'.

No.	Signal name	Dir.	Pin Functions
105	LFEON	OUT	Reserved for high-quality audio model's LFE control.
106	TP-	OUT	Not use.
107	VDD_3V3	–	3.3 V Power supply
108	VSS	–	Ground
109	TRST		Diagnostic Controle Unit interface
110	TMS		Diagnostic Controle Unit interface
111	TDTO		Diagnostic Controle Unit interface
112	TDTI		Diagnostic Controle Unit interface
113	TCK		Diagnostic Controle Unit interface
114	ROTDRV	OUT	Carousel 5 disc changer model Tray rotation drive PWM output.
115	B_F_ROM	IN	Boot select 'L' : Boot from DCU. 'H' : Boot form ROM.
116	LOAD_DRV	OUT	Tray Open/Close drive PWM output (SINGL & CAROUSEL)
117	CPU_OE	OUT	8M / 16M bits FLASH memory for firmware.
118	CPU_SDCK	OUT	64M bits SDRAM for debugging firmware .
119	VDD_2V5	–	2.5 V Power supply
120	CLK27M	IN	Master 27MHz system clock input.
121	VSS	–	Ground
122	VDD_PLL	–	Clock PLL circuit 2.5 V Power supply
123	VSS_PLL	–	Clock PLL circuit Ground
124	RESET	IN	Power ON system RESET signal 'L' input.
125	DISC_SNS	IN	In case of NOT carusel 5 disc changer, this port is N.C.(input).
			Carousel 5 disc changer model Disc sense input. Pull up resistor is in another changer board.
126	FP_XRDY	IN	Front Panel interface. Hand-shake(request) input.
127	FE_INT	IN	Front-End L6315 Interrupt request input.
128	SD_DQML	OUT	Flash memory write enable 'L'. Debug SDRAM Lower DQM.
129	SD_DQMU	OUT	Debug SDRAM Upper DQM
130	SD_RXW		Debug SDRAM Read/~Write
131	CPU_WAIT	OUT	CPU wait 'H' input
132	CE3	OUT	Flash memory Chip Eenable 'L'
133	–	OUT	TP-x
134	–	OUT	TP-x
135	SD_XRAS	OUT	Debug SDRAM RAS 'L'
136	VDD_3V3	–	3.3V Vdd
137	VSS	–	GND
138	–	OUT	TP-x
139	SD_XCAS	OUT	Debug SDRAM CAS 'L'
140	SD_XCS	OUT	Debug SDRAM Chip Select 'L'

No.	Signal name	Dir.	Pin Functions
141	CPU_D0	I/O	FLASH, Debug SDRAM DATA
142	CPU_D1		
143	CPU_D2		
144	CPU_D3		
145	CPU_D4		
146	CPU_D5		
147	CPU_D6		
148	CPU_D7		
149	VDD_2V5	–	2.5 V Power supply
150	VSS	–	Ground
151	CPU_D8	I/O	FLASH, Debug SDRAM DATA
152	CPU_D9		
153	CPU_D10		
154	CPU_D11		
155	CPU_D12		
156	CPU_D13		
157	CPU_D14		
158	CPU_D15		
159	VDD_3V3	–	3.3 V Power supply
160	VSS	–	Ground
161	CPU_A1	OUT	FLASH, Debug SDRAM address
162	CPU_A2		
163	CPU_A3		
164	CPU_A4		
165	CPU_A5		
166	CPU_A6		
167	CPU_A7		
168	CPU_A8		
169	CPU_A9		
170	CPU_A10		
171	VDD_2V5	–	2.5 V Power supply
172	VSS	–	Ground
173	CPU_A11	OUT	FLASH, Debug SDRAM address
174	CPU_A12		
175	CPU_A13		
176	CPU_A14		
177	CPU_A15		
178	CPU_A16		
179	CPU_A17		
180	CPU_A18		
181	CPU_A19		
182	CPU_A20		
183	CPU_A21		
184	VDD_3V3	–	3.3 V Power supply

No.	Signal name	Dir.	Pin Functions
185	VSS	–	Ground
186	XDRVMUTE	OUT	Motor driver muting signal 'L'.
187	RS_ERROR	IN	Front-End L6315 stream interface. If STi5588 then ECC Error flag.
188	I2C_SEL	OUT	Reserved (Front-End L6315 command interface.) ('L' : I2C bus connect to I2C_DMA) ('H' : I2C bus connect to I2C_COMAND)
189	DAC_SCK	OUT	Audio DAC serial control clock output.
190	DAC_SO	OUT	Audio DAC serial control data output.
191	DAC_XCS0	OUT	Audio DAC serial control chip select output.
192	DAC_XCS1	OUT	Reserved (Audio DAC serial control chip select output. For addition DAC)
193	6CH_MODE	OUT	In case of NOT 6ch audio output model, this port is N.C.(output).
			6ch audio output model Audio quality up control signal output.
194	SDA	SDA	Front-End L6315 command interfase I2C bus serial data line.
195	SCL	SCL	Front-End L6315 command interfase I2C bus serial clock line.
196	FE_RST	OUT	Front-End L6315 Hard reset output.
197	TXD	TXD	UART(RS-232C) data output
198	VDD_2V5		2.5 V Power supply
199	VSS	IN	Ground
200	RXD	RXD	UART(RS-232C) data input
201	TP-x	OUT	Reserved
202	TRIGIN	–	Diagnostic Controle Unit interface
203	TRIGOUT	–	Diagnostic Controle Unit interface
204	OPEN	IN	'H' show tray loading "OPEN" complete position.
205	XCLOSE	IN	'H' show tray loading "CLOSE" complete position.
206	FP_ACK	OUT	Front Panel interface. Hand-shake (acknowledge) output.
207	FP_SCK	OUT	Front Panel interface. (Soft) Serial transfer clock output.
208	FP_SI	IN	Front Panel interface. (Soft) Serial transfer data input.

■ PE5314B (FJMB ASSY : IC11)

• FL Controller

● Pin Function

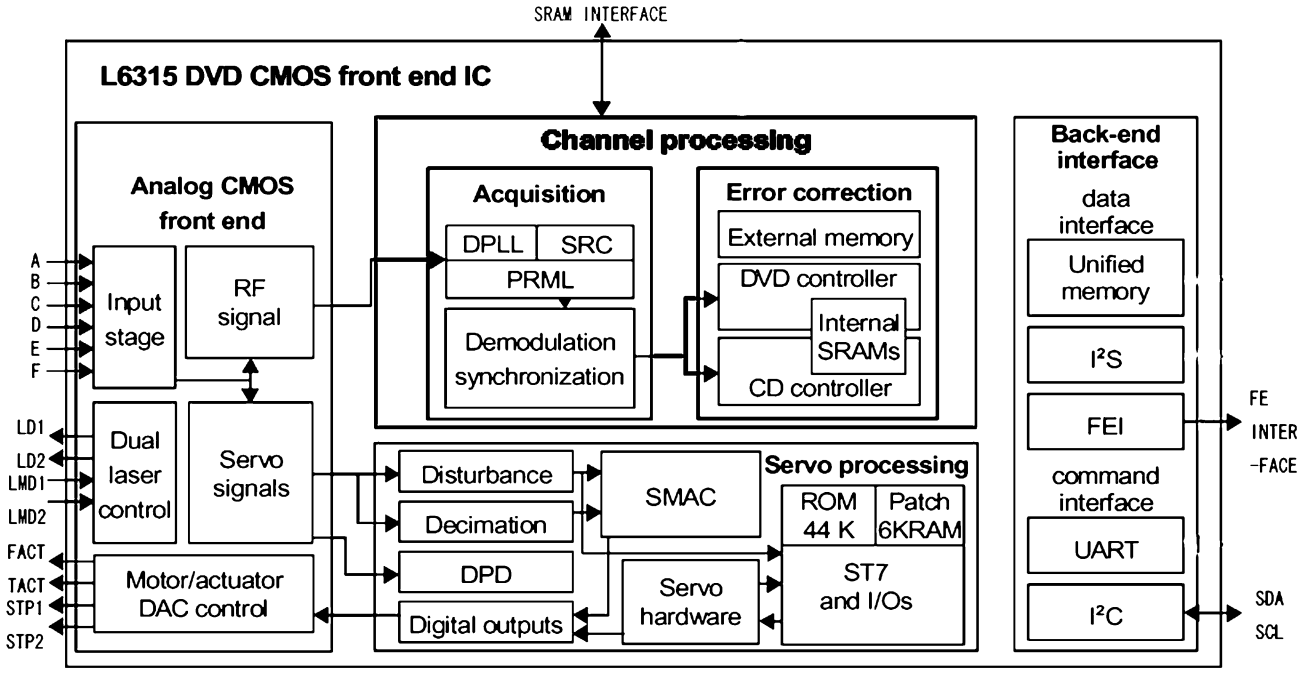
No.	Signal name	Dir.	Pin Functions
1	V_{DD1}	–	Positive Power Supply (3.3 V)
2	V_{SS1}	–	Ground Potential
3	X1	IN	Crystal Connection for Main System Clock Oscillation
4	X2	–	
5	IC	–	Internally Connected (Directly connect to VSS1)
6	RESET	IN	Reset Input
7	SCK1	IN	Serial Clock Input of Serial Interface
8	SI1	IN	Serial Data Input of Serial Interface
9	SO1	OUT	Serial Data Output of Serial Interface
10	XRDY	OUT	Hand-shake (Ready) Output of Serial Interface
11	POWER ON	OUT	Power Control Output
12	RESET OUT	OUT	System Reset Output
13	RESERVE OUT	OUT	Reserved (NC on this model)
14	LED8	OUT	LED Port 8 (NC on this model)
15	HALT	IN	Halt Port "NC" : Use Halt Mode
16	ACK	IN	Hand-shake (Acknowledge) Input of Serial Interface (Not used on this model)
17	SEL IR	IN	Remote Control Input (Timer input of 8-bit remote control timer)
18	A_{VSS}	–	Ground Potential for A/D Converter
19	MS1	IN	Destination (of player) Select (Analog Input for A/D Converter)
20	ECHO VR	IN	Karaoke model : Echo Volume Input No Karaoke model : NC (Analog Input for A/D Converter)
21	KEY1	IN	Key Input 1 (Analog input for A/D converter)
22	KEY0	IN	Key Input 0 (Analog input for A/D converter)
23	VSS0	–	Ground Potential to Ports
24	AVDD	–	Analog Power/Reference Voltage Input to A/D Converter (3.3 V)
25	VDD0	–	Positive Power Supply to Ports (3.3 V)
26	MS0_2	IN	Model (of player) Select (Set with a combinaition of this 3 ports)
27	MS0_1		
28	MS0_0		
29	LED7	OUT	LED Port 7 (NC on this model)
30	LED(STAND BY)	OUT	Stand By LED Port (NC on this model)
31	NC	–	NC
32	TES	IN	"H" : No System Reset mode "L" : General mode
33	OEM	IN	"H" : OEM Model "L" : Pioneer Model
34	MIC IN	IN	Detection of Microphone "H" : Microphone connected
35	CHECKER	IN	"H" : Checker Mode "L" : General mode
36	ON POWER	IN	"H" : Primary Power Switch Model "L" : Secondary Power Switch Model
37	FL SET2	IN	FL-Controller Mode Select FL SET1 / 2 = "H" / "H" : DV-353 (This model) FL SET1 / 2 = "H" / "L" : Other model FL SET1 / 2 = "L" / "H" : Other model FL SET1 / 2 = "L" / "L" : Other model
38	FL SET1		
39	TEST2	OUT	Test Port
40	LED6	OUT	LED Port 6 (NC on this model)

No.	Signal name	Dir.	Pin Function
41	LED5	OUT	LED Port 5 (NC on this model)
42	LED4		LED Port 4 (NC on this model)
43	LED3		LED Port 3 (NC on this model)
44	LED2		LED Port 2 (NC on this model)
45	LED1		LED Port 1 (NC on this model)
46	LED0		LED Port 0 (NC on this model)
47	TEST1	OUT	Test Port
48	TEST0		
49	NC	–	NC
50	NC		
51	P16	OUT	FIP Segment 16 Output
52	P15	OUT	FIP Segment 15 Output
53	NC	–	NC
54	P14	OUT	FIP Segment 14 Output
55	P13		FIP Segment 13 Output
56	P12		FIP Segment 12 Output
57	P11		FIP Segment 11 Output
58	P10		FIP Segment 10 Output
59	VDD2	–	Positive Power Supply to FIP Controller/Driver (3.3 V)
60	VLOAD	–	Pull-down Resistor Connection of FIP Controller/Driver (-28V)
61	P9	OUT	FIP Segment 9 Output
62	P8		FIP Segment 8 Output
63	P7		FIP Segment 7 Output
64	P6		FIP Segment 6 Output
65	P5		FIP Segment 5 Output
66	P4		FIP Segment 4 Output
67	P3		FIP Segment 3 Output
68	P2		FIP Segment 2 Output
69	P1		FIP Segment 1 Output
70	G11	OUT	FIP Grid 11 Output
71	G10		FIP Grid 10 Output
72	G9		FIP Grid 9 Output
73	G8		FIP Grid 8 Output
74	G7		FIP Grid 7 Output
75	G6		FIP Grid 6 Output
76	G5		FIP Grid 5 Output
77	G4		FIP Grid 4 Output
78	G3		FIP Grid 3 Output
79	G2		FIP Grid 2 Output
80	G1		FIP Grid 1 Output

■ L6315ATXXTY (FJMB ASSY : IC301)

• **Front End IC**

● **Block Diagram**



● **Pin Function**

No.	Name	Type	Description
1	IREF	Analog input	bandgap filtering input
2	GNDAI	Analog ground	analog power supply ground
3	RFSACD	Analog output	RF output for SA-CD support
4	RFIN	Analog input	RF path data input (after AC coupling)
5	RFOUT	Analog output	RF path data output (before AC coupling)
6	VCCA18	Analog supply	input stage power supply
7	TST_ADC	Analog output	RF path analog test pin
8	TST_SLICE	Analog output	PM analog test pin
9	TST_PM	Analog output	PM analog test pin
10	A	Analog input	input stages laser diode A
11	GNDMN	Analog ground	input stages ground main
12	B	Analog input	input stages laser diode B
13	VCC33MN	Analog supply	input stages 3.3 V misc.
14	REFD	Analog output	reference voltage for pickup
15	VCC18IS	Analog supply	input stages 1.8 V main
16	D	Analog input	input stages laser diode D
17	VCCA18IS	Analog supply	input stages 1.8 V misc.
18	C	Analog input	input stages laser diode C
19	VCC33IS	Analog supply	input stages 3.3 V misc.
20	GNDAIS	Analog ground	input stages ground misc.
21	VCC33SD	Analog supply	input stages 3.3 V side
22	VCC18SD	Analog supply	input stages 1.8 V side
23	GNDSD	Analog ground	input stages ground side
24	F	Analog input	input stages laser diode F
25	E	Analog input	input stages laser diode E
26	VSHIELIS	Analog ground	IS shield
27	VDDADC	Analog supply	ADC digital power supply
28	VSSADC	Analog ground	ADC digital ground supply
29	VCCADC	Analog supply	ADC analog power supply
30	GNDADC	Analog ground	ADC analog ground supply
31	VSHIELDADC	Analog ground	ADC shield
32	NC	-	-
33	BOOT_MODE	Digital input	Boot mode
34	VSS	Digital ground	VSS I/O
35	VDD3	Digital supply	VDD I/O (3.3 V)
36	PC[0] (NC)	Digital I/O	-
37	PC[1] (PS)	Digital I/O	Driver IC power save
38	PC[2] (FG)	Digital I/O	FG pulse input
39	PC[3] (SB)	Digital I/O	Spindle short brake
40	PC[4] (SLDPOS)	Digital I/O	Slider position input

No.	Name	Type	Description
41	PC[5] (VROFST)	Digital I/O	VREF offset adjustment (stand-by)
42	PC[6] (SPDL_PDM)	Digital I/O	Spindle drive out
43	PC[7] (OEICG)	Digital I/O	OEIC gain sw
44	VSS	Digital ground	VSS core
45	VDD3S	Digital supply	VDD core
46	VSS_SPL	Digital ground	VSS I/O
47	RAM_DQM	Digital output	SDRAM DQM
48	RAM_WEN	Digital output	RAM write enable
49	RAM_CASN / Sradr14	Digital output	SRAM address
50	RAM_RASN / Sradr15	Digital output	SRAM address
51	RAM_A[13]	Digital output	SRAM address
52	RAM_A[12]	Digital output	SRAM address
53	RAM_A[11]	Digital output	SRAM address
54	RAM_A[10]	Digital output	SRAM address
55	RAM_A[0]	Digital output	SRAM address
56	RAM_A[1]	Digital output	SRAM address
57	RAM_A[2]	Digital output	SRAM address
58	RAM_A[3]	Digital output	SRAM address
59	RAM_A[4]	Digital output	SRAM address
60	RAM_A[5]	Digital output	SRAM address
61	RAM_A[6]	Digital output	SRAM address
62	RAM_A[7]	Digital output	SRAM address
63	RAM_A[8]	Digital output	SRAM address
64	RAM_A[9]	Digital output	SRAM address
65	RAM_CLK / Sradr16	Digital output	SRAM address
66	VDD_SPL	Digital supply	VDD I/O
67	VDD3	Digital supply	VDD I/O
68	VSS	Digital ground	VSS I/O
69	RAM_DQ[0]	Digital I/O	SRAM data
70	RAM_DQ[1]	Digital I/O	SRAM data
71	RAM_DQ[2]	Digital I/O	SRAM data
72	RAM_DQ[3]	Digital I/O	SRAM data
73	RAM_DQ[4]	Digital I/O	SRAM data
74	RAM_DQ[5]	Digital I/O	SRAM data
75	RAM_DQ[6]	Digital I/O	SRAM data
76	RAM_DQ[7]	Digital I/O	SRAM data
77	VDD3S	Digital supply	VDD core
78	VSS	Digital ground	VSS core
79	OUT_REQ	Reserved	Must be set to ground
80	OUT_ERR	Digital output	Output interface

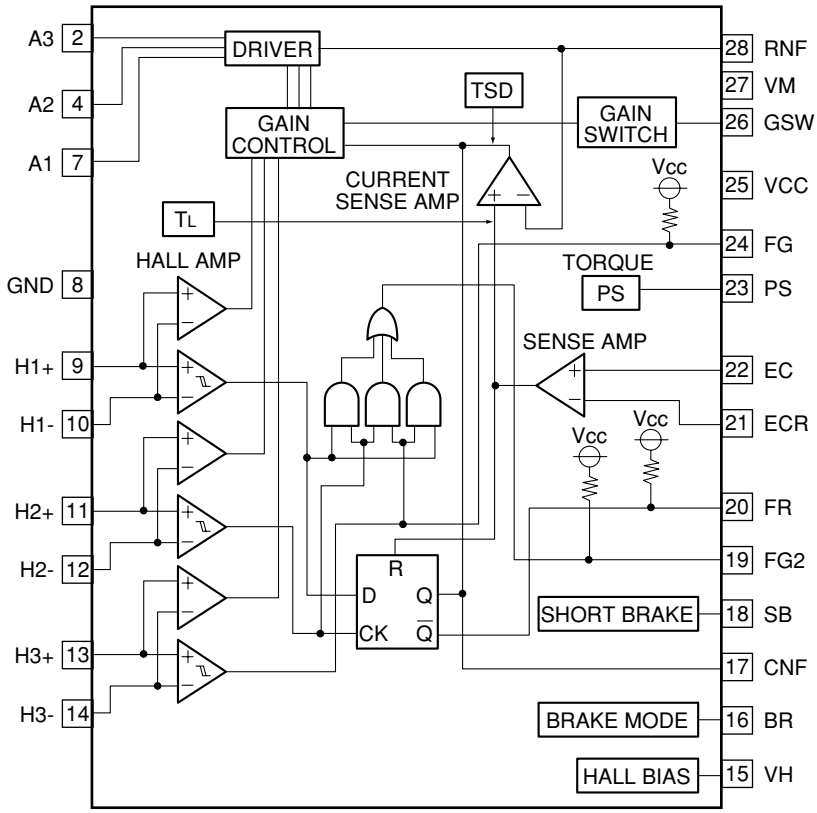
No.	Name	Type	Description
81	OUT_SYNC	Digital output	Output interface
82	OUT_DVALID	Digital output	Output interface
83	OUT_CLK	Digital output	Output interface
84	OUT_DATA[0] (FE_DATA)	Digital output	Output interface
85	OUT_DATA[1] (FE_EVALID)	Digital output	Output interface: BW com
86	OUT_DATA[2] (FE_ECCBST)	Digital output	Output interface: BW com
87	OUT_DATA[3]	Digital output	Reserved
88	OUT_DATA[4]	Digital output	Reserved
89	OUT_DATA[5]	Digital output	Reserved
90	OUT_DATA[6]	Digital output	Reserved
91	OUT_DATA[7]	Digital output	Reserved
92	VDD3	Digital supply	VDD I/O
93	VSS	Digital ground	VSS I/O
94	PE[0] (FE_INIT)	Digital I/O	FE initialize input
95	PE[1] (NC)	Digital I/O	-
96	PE[2] (DMA)	Digital I/O	DMA input
97	PE[3] (SCL)	Digital I/O	I2C clock input
98	PE[4] (SDA)	Digital I/O	I2C data input
99	PD[0] (NC)	Digital I/O	-
100	PD[1] (NC)	Digital I/O	-
101	PD[2] (NC)	Digital I/O	-
102	PD[3] (NC)	Digital I/O	-
103	PD[4] (NC)	Digital I/O	-
104	PD[5] (NC)	Digital I/O	-
105	PD[6] (NC)	Digital I/O	-
106	PD[7] (NC)	Digital I/O	-
107	VDD3	Digital supply	VDD I/O
108	VSS	Digital ground	VSS I/O
109	VPP_TEST	Digital input	Test input
110	VCCD_BYP	Digital supply	VDD core
111	VCCD_OUT	-	No voltage to be applied
112	VSS	Digital ground	VSS core
113	VDD3S	Digital supply	VDD core
114	VSS	Digital ground	VSS I/O
115	VDD3	Digital supply	VDD I/O
116	RESET_IN	Digital input	Global reset signal
117	VCC18DAC	Analog supply	DAC analog power supply
118	STEPER1	Analog output	DAC spindle motor
119	STEPER2	Analog output	DAC sled motor
120	REFEXT	Analog input	DAC external reference

No.	Name	Type	Description
121	REFGND	Analog ground	DAC analog ground supply
122	REFDAC	Analog output	DAC reference voltage
123	FACT	Analog output	DAC focus actuator
124	TACT	Digital output	DAC tracking actuator
125	GNDDAC	Analog ground	DAC analog ground supply
126	NC	-	-
127	VCCA33	Analog supply	DAC analog power supply
128	NC	-	-
129	GNDPLL	Analog ground	PM analog ground supply
130	PLLOFF	Analog input	PM reference disable PLL
131	FREOUT	Analog output	PM reference frequency out
132	FREIN	Analog input	PM reference frequency in
133	VCCPLL	Analog supply	PM analog power supply
134	SREG1	Analog output	External bipolar base
135	VCCR33	Analog supply	Analog power supply for regulator
136	SREG2	Analog output	External bipolar base
137	LD1	Analog output	Laser control laser diode 1
138	LD2	Analog output	Laser control laser diode 2
139	VCCA33	Analog supply	Analog power supply for input stages +
140	LCREF	Analog output	Laser control DAC reference
141	LMD1	Analog input	Laser control monitor diode 1
142	LMD2	Analog input	Laser control monitor diode 2
143	GNDL	Analog ground	Laser control detector ground sup
144	VBGFILT	Analog input	Bandgap filtering input

■ BA6664FM (FJMB ASSY : IC251)

• Spindle Driver

● Block Diagram



● Pin Function

No.	Pin Name	Pin Function	No.	Pin Name	Pin Function
1	N.C.	N.C.	16	BR	Brake mode switching pin
2	A3	Output pin	17	CNF	Capacitor connection pin for phase compensation
3	N.C.	N.C.	18	SB	Short brake pin
4	A2	Output pin	19	FG2	FG 3-phase mix signal output pin
5	N.C.	N.C.	20	FR	Rotation detecting pin
6	N.C.	N.C.	21	ECR	Control reference pin of output voltage
7	A1	Output pin	22	EC	Output voltage control pin
8	GND	GND pin	23	PS	Power save pin
9	H1+	Hall signal input pins	24	FG	FG signal output pin
10	H1-		25	VCC	Power supply pin
11	H2+		26	GSW	Gain switching pin
12	H2-		27	VM	Motor power pin
13	H3+		28	RNF	Resistor connection pin for output current detection
14	H3-		FIN	FIN	GND
15	VH	Hall bias pin			

■ PCM1742KE (FJMB ASSY : IC711)

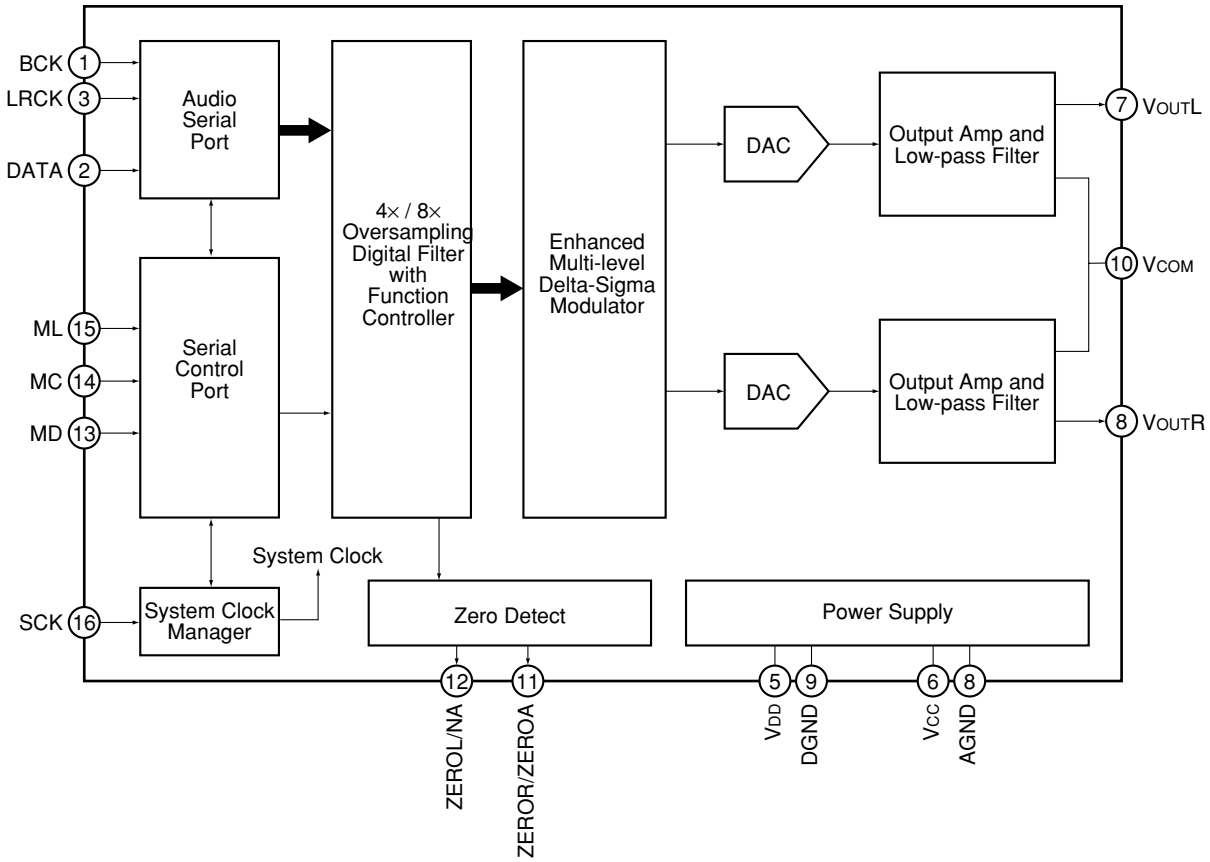
• D/A Converter

● Pin Arrangement

● Pin Function

No.	Nmae	I/O	Pin Function
1	BCK	I	Audio data bit clock input
2	DATA	I	Audio data digital input
3	LRCK	I	L-channel and R-channel Audio data latch enable input
4	DGND	–	Digital ground
5	V_{DD}	–	Digital power supply +3.3V
6	V_{CC}	–	Analog power supply +5V
7	$V_{OUT}L$	O	Analog output for L-channel
8	$V_{OUT}R$	O	Analog output for R-channel
9	AGND	–	Analog ground
10	V_{COM}	–	Common voltage decoupling
11	ZEROR/ZEROA	O	Zero flag output for R-channel / Zero flag output for L/R-channel
12	ZEROL/NA	O	Zero flag output for L-channel / No assign
13	MD	I	Mode control data input
14	MC	I	Mode control clock input
15	ML	I	Mode control latch input
16	SCK	I	System clock input

● Block Diagram



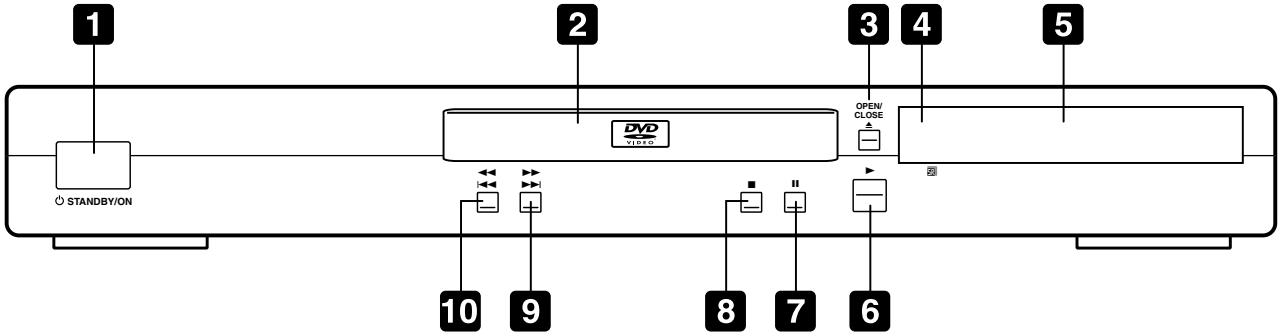
7.3 CLEANING

Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools:

Position to be cleaned	Cleaning tools
Pickup leneses	Cleaning liquid : GEM1004 Cleaning paper : GED-008

8. PANEL FACILITIES

Front panel



1 ⏻ STANDBY/ON
Press to switch the player on or into standby

2 Disc tray

3 ⏏ OPEN/CLOSE
Press to open or close the disc tray

4 Remote control sensor
The remote control has a range of up to about 7m

5 Display

6 ►
Press to start or resume playback

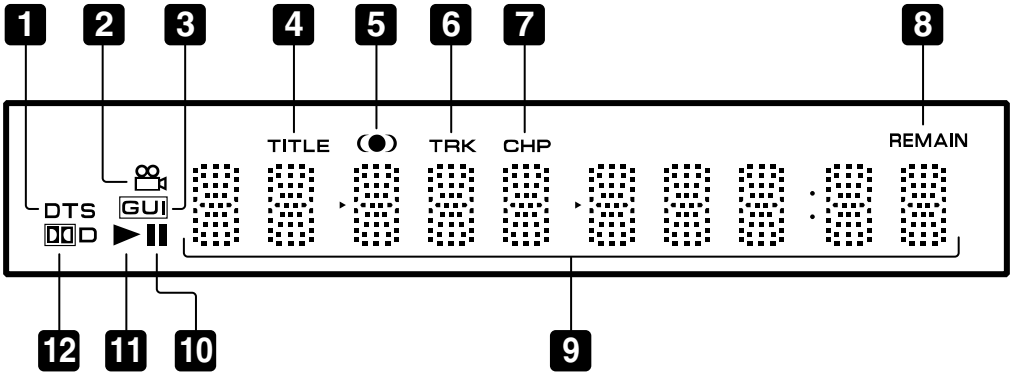
7 ⏸
Press to pause playback. Press again to restart

8 ■
Press to stop the disc (you can resume playback by pressing ► (play))

9 ►► ►►|
- Press and hold for fast forward scanning
- Press to jump to the next chapter or track

10 |◄◄ ◄◄
- Press and hold for fast reverse scanning
- Press to jump back to the beginning of the current chapter or track, then to previous chapters/tracks

Display



1 DTS
Lights when a DTS soundtrack is playing

2
Lights during multi-angle scenes on a DVD disc

3 GUI (Graphical User Interface)
Lights when a menu is displayed on-screen

4 TITLE
Indicates that the character display is showing a DVD title number

5
Lights when V/TruSurround is active

6 TRK
Indicates that the character display is showing a CD or Video CD track number

7 CHP
Indicates that the character display is showing a DVD chapter number

8 REMAIN
Lights when the character display is showing the time or number of tracks/titles/chapters remaining

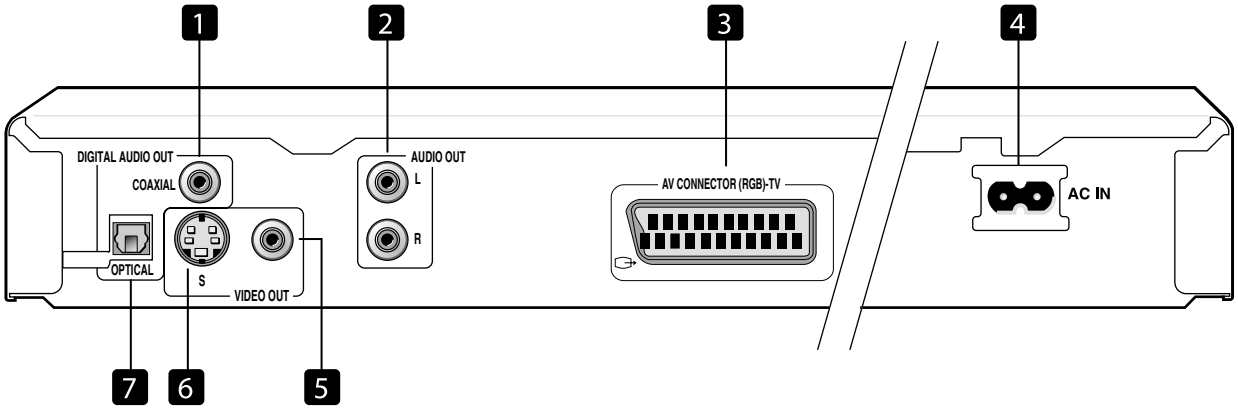
9 Character display

10 ⏸
Lights when a disc is paused

11 ►
Lights when a disc is playing

12 D
Lights when a Dolby Digital soundtrack is playing

Rear panel connections



When connecting this player up to your TV, AV receiver or other components, make sure that all components are switched off and unplugged.

1 DIGITAL AUDIO OUT – COAXIAL

This is a digital audio output for connection to a PCM, Dolby Digital, DTS and/or MPEG-compatible AV receiver that has a coaxial digital input.

Connect using a commercially available coaxial digital audio cable.

2 AUDIO OUT L / R

This pair of analog audio outputs connects to your TV, AV receiver or stereo system. Even if you are connecting up one of the digital outputs, we still recommend you connect these jacks.

Use the supplied audio/video cable when connecting these jacks. Match the colors of the jacks and cables for correct stereo sound.

3 AV CONNECTOR (RGB) - TV

This is a combined audio and video output for connection to a TV that has a SCART input. Connect using a SCART cable. The type of video output can be switched to suit your TV.

4 AC IN

Connect the supplied power cord here, then plug into a power outlet.

5 VIDEO OUT

This is a standardvideo output that you can connect to your TV or AV receiver using the supplied audio/video cable.

6 S (S-Video output)

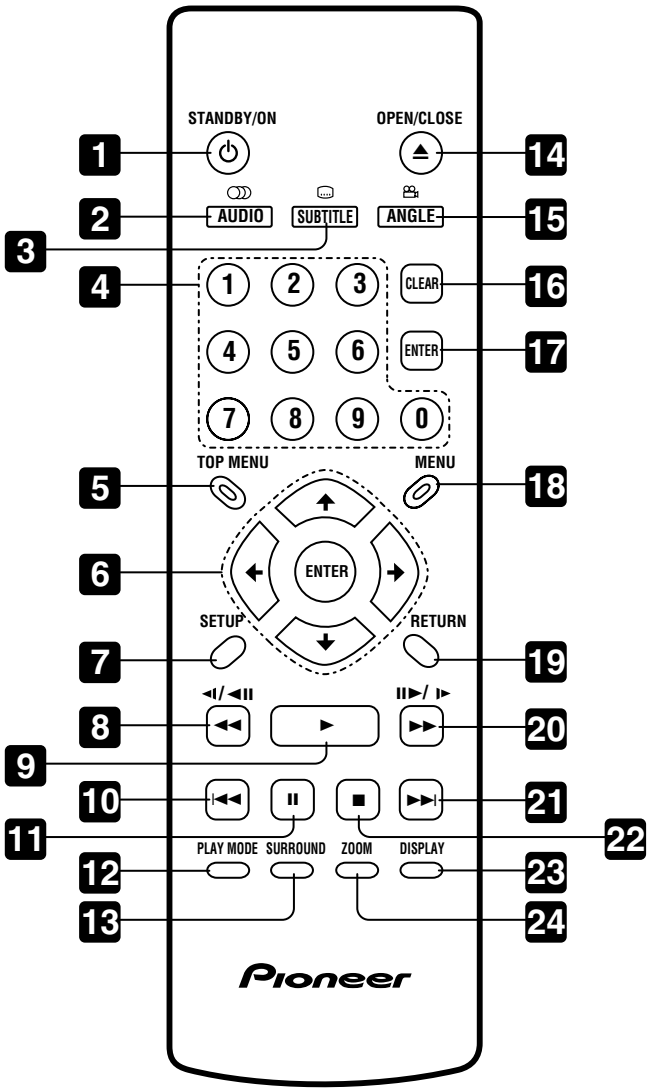
This is an S-video output that you can use instead of the video output described in **5** above.

7 DIGITAL AUDIO OUT - OPTICAL

This is a digital audio output for connection to a PCM, Dolby Digital, DTS and/or MPEG-compatible AV receiver that has an optical digital input.

Connect using a commercially available optical digital audio cable.

Remote control



1 ⏻ STANDBY/ON
Press to switch the player on or into standby

2 AUDIO
Press to select the audio channel or language

3 SUBTITLE
Press to select a subtitle display

4 Number buttons

5 TOP MENU
Press to display the top menu of a DVD disc

6 ENTER & cursor control buttons
Use to navigate on-screen displays and menus. Press **ENTER** to select an option or execute a command

7 SETUP
Press to display (or exit) the on-screen display

8 ◄◄ and ◄I/◄II
Use for reverse slow motion playback, frame reverse and reverse scanning.

9 ►
Press to start or resume playback

10 I◄◄
Press to jump to the beginning of the current chapter or track, then to previous chapters/ tracks

11 II
Press to pause playback; press again to restart

12 PLAY MODE
Press to display the Play Mode menu (You can also get to the Play Mode menu by pressing **SETUP** and selecting **Play Mode**)

13 SURROUND
Press to activate/switch off DDV/TruSurround

14 ⏏ OPEN/CLOSE
Press to open or close the disc tray

15 ANGLE
Press to change the camera angle during DVD multi-angle scene playback

16 CLEAR
Press to clear a numeric entry

17 ENTER
Use to select menu options, etc. (works exactly the same as the **ENTER** button in 6 above)

18 MENU
Press to display a DVD disc menu, or the Disc Navigator if a CD, Video CD or MP3 disc is loaded

19 RETURN
Press to return to a previous menu screen

20 ►► and II►/I►
Use for forward slow motion playback, frame advance and forward scanning.

21 ►►I
Press to jump to the next chapter or track

22 ■
Press to stop the disc (you can resume playback by pressing ► (play))

23 DISPLAY
Press to display information about the disc playing

24 ZOOM
Press to change the zoom level